United States Environmental Protection Agency
Washington, D.C. 20460

Water Compliance Inspection Report

Section A: National Data System Coding (i.e., PCS)

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 [N] [ ]	[I][D][R][0][5][C][0][1][7]	[1][4][0][9][2][5]	[~]	[R]	[2]

Remarks

21 [ ] 66

Inspection Work Days	Facility Self-Monitoring Evaluation Rating	BI	QA	Reserved
67 [1][2][0] 69	70 [4]	71 [N]	72 [N]	73 [ ] [ ] 74 75 [ ] 80

Section B: Facility Data

Name and Location of Facility Inspected *(For industrial users discharging to POTW, also include POTW name and NPDES permit number)*	Entry Time/Date	Permit Effective Date
Nu-West Industries, Inc. (a subsidiary of Agrium, Inc.), Rasmussen Ridge Mine 3826 Blackfoot River Road Soda Springs, ID 83276	9:20 am; 09/25/14	04/18/09
	Exit Time/Date	Permit Expiration Date
	5:00 pm; 09/25/14	09/29/13 - Admin Extnd

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)	Other Facility Data *(e.g., SIC NAICS, and other descriptive information)*
Scott Donahoo/Site Supervisor/208-574-2080; ext. 1301 email: donahoo.scott@agrium.com Frederick Partey/Environmental Mining Project Specialist/208-574-1089 email: frederick.partey@agrium.com	SIC # 1475 NAICS # 212392
Name, Address of Responsible Official/Title/Phone and Fax Number Scott Donahoo/Site Supervisor/208-574-2080; ext. 1301 3826 Blackfoot River Road Soda Springs, ID 83276 email: donahoo.scott@agrium.com	**Contacted** [☑] Yes [☐] No

Section C: Areas Evaluated During Inspection *(Check only those areas evaluated)*

[✓] Permit	[✓] Self-Monitoring Program	[ ] Pretreatment	[ ] MS4
[✓] **Records/Reports**	[✓] Compliance Schedules	[✓] Pollution Prevention	
[✓] Facility Site Review	[ ] Laboratory	[✓] Storm Water	
[✓] Effluent/Receiving Waters	[ ] Operations & Maintenance	[ ] Combined Sewer Overflow	
[ ] Flow Measurement	[ ] Sludge Handling/Disposal	[ ] Sanitary Sewer Overflow	

Section D: Summary of Findings/Comments

(Attach additional sheets of narrative and checklists, including Single Event Violation codes, as necessary)

SEV Codes	SEV Description

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
Patrick Stoll	EPA/R10/OCE/IEMU/IOO / 208-378-5772	09/30/14
Signature of Management Q A Reviewer Kimberly A. Ogle	Agency/Office/Phone and Fax Numbers EPA/OCE/IEMU/3-0955	Date 1/20/15

National Pollutant Discharge Elimination System (NPDES)
Multi-Sector General Permit for Stormwater Discharges from Industrial Facilities (MSGP)

Compliance Evaluation Inspection Report

Nu-West Industries, Inc., Rasmussen Ridge Mine
(a subsidiary of Agrium, Inc.)
Soda Springs, Idaho

NPDES Permit Tracking # IDR05C017

Inspection date: September 25, 2014
Report completion date: January 7, 2014

Prepared by:

Patrick Stoll
U.S. Environmental Protection Agency, Region 10
Office of Compliance and Enforcement
Inspection and Enforcement Management Unit
Idaho Operations Office
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Boise, Idaho 83702
(208) 378-5772

Table of Contents

I. Facility Information

Facility Name:	Nu-West Industries, Inc., Rasmussen Ridge Mine (a subsidiary of Agrium, Inc.)
NPDES Tracking No.:	IDR05C017 Effective date: 04/18/2009 Expiration date: 09/29/2013 – Administratively Extended
Facility Representatives:	Scott Donahoo, Site Supervisor (208) 574-2080, ext. 1301; donahoo.scott@agrium.com Dr. Fredrick Partey, Env. Mining Project Specialist (208) 547-1089; frederick.partey@agrium.com Thomas Miller, Environmental Specialist (208) 909-5308; tom.miller@agrium.com Mitch Hart, Mining Programs & Remediation Manager, Agrium U.S. Corporate Office; Denver, Colorado (303) 883-1184; mitchell.hart@agrium.com Amber Liechty (now Martin), Environmental Technician (208) 574-2080, ext. 1208; amber.martin@agrium.com
Facility Type:	Phosphate Rock Mining, SIC Code #1475 MSGP Sector J
Facility Location:	3826 Blackfoot River Road Soda Springs, ID 83276
Mailing Address:	3826 Blackfoot River Road Soda Springs, ID 83276

II. Inspection Information

Inspection Date(s):	September 25, 2014
Inspector(s):	Patrick Stoll, Inspector (lead) EPA Region 10/OCE/IEMU/IOO (208) 378-5772 Wayne Crowther, P.E., Sr. Regional Engineer Idaho Department of Environmental Quality (IDEQ) Pocatello Regional Office; (208) 236-6160

Entry Time:	9:20 am
Exit Time:	5:00 pm
Weather Conditions:	Warm, clear, temperature in the 60-70's (Fahrenheit)
Receiving Waters:	Tributaries of the Blackfoot River: South Fork of Sheep Creek (previously referred to as the South Rasmussen Drainage), No Name Creek, Angus Creek, Rasmussen Creek, and an unnamed wetland.
Purpose:	Evaluate compliance status with respect to the Clean Water Act and the facility's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (administratively extended).
Information Source(s):	Initial information was provided by the facility representatives identified above. Additional information was later provided by recently re-hired Nu-West environmental technician Justin Skinner and by Idaho Department of Environmental Quality hydrogeologist Scott Miller.

III. Inspection Entry

This inspection was conducted the day after an inspection at the adjacent P4 South Rasmussen Mine. I contacted Nu-West Rasmussen Ridge mine (NWRRM) supervisor Scott Donahoo the afternoon before the inspection to advise him that I was planning to conduct an inspection at the NWRRM the following day. Since the mine office is located along an active haul road, an escort would be required. Mr. Donahoo told me that he would have Nu-West Environmental Specialist Tom Miller contact me as soon as possible to work out the details. Mr. Miller contacted me a short time later and we agreed to meet the next morning in the parking lot of P4's nearby South Rasmussen mine office.

Wayne Crowther, a regional engineer in the Idaho Department of Environmental Quality (IDEQ) Pocatello office, would be joining me on this inspection. Prior to the inspection, EPA Idaho Operations Office director Jim Werntz had suggested that I contact IDEQ's Pocatello office remediation manager Douglas Tanner to let him know that I would be working in the Soda Springs area. Mr. Tanner indicated that he would be interested in having Mr. Crowther join me on this inspection. Mr. Crowther is responsible for reviewing documents associated with remediation and reclamation projects at many of the mines in the area to verify compliance with IDEQ's water quality standards. With respect to the NWRRM, Mr. Crowther was also interested in Nu-West's efforts to satisfy the requirements of a 2013 Consent Order between Nu-West and IDEQ.

Mr. Crowther and I arrived at the agreed upon location at 9:00 am on the morning of September 25, 2014. Within minutes, Mr. Miller arrived in his truck. Brief introductions were made before we followed Mr. Miller along the haul road to the NWRRM office (a distance of approximately three miles).

Once we arrived at the NWRRM office, we were led into a conference room where the other NWRRM representative noted in Section I were awaiting our arrival. I presented my inspection credentials, exchanged business cards, and explained that the inspection I would be conducting was intended to verify compliance with the Clean Water Act and the and the requirements of the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP). I indicated that I was also interested in learning more about efforts to characterize and manage surface and groundwater contamination at the site, particularly in the vicinity of the South External Dump (SED).

IV. Scope of Inspection

This inspection was intended to evaluate the degree to which the NWRRM is in compliance with the requirements of the Clean Water Act and the MSGP. The inspection included the following elements:

1. An opening conference describing the purpose of the inspection.
2. A detailed review of the current status of the NWRRM (I had previously conducted an inspection of the mine in September 2012).
3. A review of the NWRRM Stormwater Pollution Prevention Plan (SWPPP) including all site maps, plans, best management practices (BMPs) for controlling stormwater run on and runoff from the site, and site inspections.
4. An on-the-ground review of the entire NWRR site with particular attention to the SED and the adjacent South Fork of Sheep Creek (previously referred to as the South Rasmussen Drainage).
5. A closing conference to summarize observations and issues noted during the inspection.

V. Facility Background

I previously inspected the NWRRM on September 6, 2012. An excerpt from the report associated with that inspection provides background information (**Note**: the NWRRM is referred to as "RRM" in the 2012 report):

> *The Nu-West Industries, Inc. RRM is an open pit phosphate mine located adjacent to P4 Production's South Rasmussen Mine, approximately 20 miles northeast of Soda Springs, Idaho. Operations at RRM ceased in early 2005, resuming again in 2011 (some pre-stripping work was performed in the northern part of the mine in 2008). Mining operations at RRM are contracted out to the Kiewet Mining Group. Kiewet employs approximately 135 individuals on-site; Nu-West directly employed 20 individuals at the time of this inspection.*

Rasmussen Ridge is a major mine complex involving three large open pit mining areas commonly referred to as North, Central, and South Rasmussen (to avoid confusion, it should be noted that a haul road divides the Central Pit into the South Rasmussen Central Pit and the North Rasmussen Central Pit). The South Rasmussen area was originally owned by Rhone-Poulenc with operations beginning in 1991. Starting in 1995, the southern half of the Central Rasmussen area was also mined by Rhone-Poulenc. Nu-West took over mining operations of Rasmussen Ridge in 1998 and mined the northern half of the Central area. The Central area has since been mined out and will only be used for backfilling in the future. In 2003, a mine plan approved by the Department of Interior's Bureau of Land Management (BLM) provided Nu-West with the authorization to mine the North Rasmussen area (each of the mine areas has operated under its own separate mine plan). No actual processing of ore takes place at the mine site.

The North Rasmussen area is divided into Panel A and Panel B. While some work was conducted in Panel A in 2008 (primarily pre-stripping of overburden), actual production in did not begin in that area until early 2011. Mining in Panel B began in the third quarter of 2012. The North Rasmussen area is expected to remain productive until 2016.

Facility representatives present at the time of this inspection indicated that there are several potential receiving waters for any discharges from the site: No Name Creek (flowing between the South and Central areas); Rasmussen Creek and Angus Creek (flows along the haul road); and the South Rasmussen Drainage/West Fork Sheep Creek (a tributary of the Blackfoot River).

As noted previously, an on-going concern at the RRM has been the discharge of selenium-contaminated groundwater/mine water from the toe of an external mine dump located at the southern end of the mine complex. The discharge has been responsible for a number of seeps that flow into South Rasmussen Drainage below the dump. Beginning in 2002, Nu-West began installing a series of "stormwater retention ponds" within the South Rasmussen Drainage to collect and manage the discharges from the dump as well as stormwater from adjacent surface areas ... In theory, the ponds were intended to serve as a mitigation measure designed to eliminate any unpermitted discharge to the waters of the United States. In 2005, Nu-West conducted sampling and analysis of the water in the South Rasmussen Drainage ponds in response to a 308 request from EPA. The detection of selenium at levels in excess of the Idaho Water Quality Standards prompted EPA to issue of a Notice of Violation (NOV) to Nu-West in February 2006. The NOV required Nu-West to conduct additional site sampling and analysis and to develop a plan to prevent any further discharges to South Rasmussen Drainage. During this inspection, Dave Tomten [EPA Region 10 Geologist] *pointed out that it is a misnomer to refer to these ponds as "stormwater" ponds since they are also used to collect and retain an industrial discharge; i.e., the discharge from the toe of the exterior dump.*

Ponds 1-5 were constructed in series so that water flows from Pond 1 down to Pond 5 via discharge pipes installed in and through the bottom of the dams between each pond. When the valves installed on the discharge pipes are in the "open" position, gravity will cause water to flow from one pond to the next. In theory, water collected from the most downgradient of the ponds (Pond 5 - lined only on the upstream face of the dam) is pumped back to Pond 2. Any time the ponds approach the level of their design capacity (e.g., during periods of wet weather), water from Pond 2 can be pumped to a large pond located in the south end of the otherwise inactive Central Pit. The distance between Pond 2 and the Central Pit pond is just slightly over one mile. The capacity of the Central Pit pond has recently been increased with the installation of a new dam. This increase in capacity is expected to accommodate the total capacity of any contaminated stormwater and/or mine water collected from the various locations around the site.

In previous years, overtopping of Pond 5 led to the discharge of contaminated stormwater/mine water into the South Rasmussen drainage. On-going sampling and analysis indicates that selenium levels in excess of the Idaho Water Quality Standards remain present Ponds 1-5 and in another pond (below Pond 5) that has a perennial discharge to South Rasmussen Drainage (the flow through Ponds 1-5 is intermittent). This pond, referred to at various times as the "Pre-Agrium Pond" or "Wendell's Pond" is located on BLM property but is not claimed by either P4 or Agrium. To insure that there is no bypass or discharge from Pond 5 in the future, the water level in Ponds 1-5 is inspected on a least a daily basis during wet weather/peak runoff periods (the presence of selenium in groundwater samples collected from a monitoring well below Pond 5 suggest that there may be an on-going alluvial discharge from this pond).

As noted previously, Nu-West took over operation of the RRM in the late 1990's. Once the Central area was mined out, Nu-West initiated the process that would allow operations to shift to the northern part of the RRM. As part of this process, Nu-West developed the North Rasmussen Ridge Supplemental Mine and Reclamation Plan (Plan). With some modifications, the Plan became the National Environmental Policy Act (NEPA) Environmental Impact Statement's (EIS) preferred alternative for the site; implementation of the Plan was authorized by BLM. In 2008 BLM and the U.S. Forest Service (both agencies have land management responsibilities in the project area), required the development of a Supplemental Reclamation Action (SRA) to address the ongoing discharges from the toe of the mine dump. The SRA required additional monitoring (surface water, groundwater, and sediments) in the South Rasmussen Drainage area along with the implementation of a pilot project involving the installation of a geosynthetic clay liner (GCL) over a 23 acre portion of the exterior mine dump [the final as-built size was 21.6 acres]. *In theory, the GCL would prevent the infiltration of meteoric water thereby cutting off the primary source of water responsible for the discharge from the seeps along the toe of the dump. The installation of the GCL*

was underway at the time of this inspection.

Changes that have taken place during the interval between my September 6, 2012 inspection and this inspection include the following:

- Completion of the installation of the geosynthetic clay liner (GCL) cover system atop the 21.6 acre portion of the SED. At the time of this inspection, the cover had been in place for just over two years.

- Panel A (the southern portion of the North Rasmussen area) has been mined out. The only active mining was taking place in Panel B to the north. Waste rock and overburden had been used to backfill North Central Rasmussen and much of Panel A.

- A Consent Order (CO) between Nu-West and the IDEQ was negotiated in April of 2013. The CO required Nu-West to undertake actions to address concerns related to groundwater and surface water contamination at the South and Central Rasmussen Ridge Area (SCRRA). Nu-West was required to conduct an investigation and develop a *Preliminary Source Characterization Report* (PSCR) as one of the first conditions of the CO. The final version of the PSCR is expected to be delivered to IDEQ in February 2015 (a copy of the draft PSCR report submitted to IDEQ is included on a CD with this inspection report).

- An automated pumping system has been installed as part of the water management system (Ponds 1-5) in the South Fork of Sheep Creek (previously referred to as the South Rasmussen Drainage); the previous pumping system was manually operated.

- Nu-West is working with the U.S. Forest Service and the Bureau of Land Management to expand mining operations into the Reese Canyon area north of current operations.

VI. Opening Conference

After presenting my credentials and explaining the purpose of the inspection, I requested an update on the status of the operations at the mine. I indicated that I was particularly interested in the SED and the seeps from the dump into the South Fork of Sheep Creek drainage. Mitch Hart, the individual responsible for managing Agrium's Mining Programs and Remediation section, happened to be on site at the time of this inspection. Mr. Hart is based in Agrium's Denver office and was scheduled to return to Denver that afternoon. He was able to attend the opening conference and provide me with a detailed overview of the current status of the SED.

South External Dump (SED) Summary

As noted in my September 6, 2012 inspection report (referenced above in Section V), the two federal land management agencies responsible for oversight of the NWRRM site (U.S. Forest Service and Bureau of Land Management) required Nu-West to develop a Supplemental Reclamation Action (SRA) as one of the permit requirements for operating the mine. As part of the SRA, Nu-West agreed to install a Focused Mitigation Technology Evaluation (FMTE) cover system on a 21.6 acre portion of the east side of the SED. Installation of the FMTE would serve as a pilot project to limit the infiltration of meteoric water over a portion of the SED. By limiting infiltration, it would theoretically be possible to evaluate the impact of an impermeable cover on the quantity and chemical composition of leachate discharged from the toe of the SED.

According to information provided by Mr. Hart and other members of the Nu-West staff, construction of the FMTE involved the installation of a geosynthetic clay liner (GCL) atop a portion of the SED followed by two feet of cover material (limestone, top soil, and growth media). Corrugated HDPE drain pipe was installed on top of the GCL within the cover layer. The drain pipe was intended to intercept any meteoric water/surface water runoff and divert it to rock-lined trenches along center and the the base of the SED (see Photos 14, 17 and 18). The rock-lined trenches would convey the runoff to a central collection system from which it would be discharged, via a culvert installed below the haul road, to the upper end of water management Pond 5 located in the South Fork of Sheep Creek drainage (see Photos 22 and 26). To evaluate the performance of different types of cover, one half of the FMTE received a rock armor cover; the other half received a vegetative cover. During our discussion, Mr. Hart acknowledged that the GCL underlying the vegetative cover had sustained some damage from grazing cattle during its two-year history.

In answer to one of my questions, Mr. Hart reported that the flow of runoff from the FMTE cover varies significantly throughout the year. Highest flows are observed during the spring snowmelt and immediately following late summer thunderstorms. According to Mr. Hart, the level of selenium in the runoff entering the Pond 5 area has rarely exceeded 15 µg/l since the installation of the FMTE. The level of selenium from the seeps along the east side of the SED reportedly averages around 50 µg/l. Mr. Hart indicated that Nu-West would be providing a finalized version of the PSCR to IDEQ in February 2015. The final PSCR will include detailed water quality information and an update on the status of the SED and the FMTE (as noted previously, I am including a draft version of the PSCR with this inspection report).

Stormwater/Mine Leachate Pump-Back System

As previously reported, a series of five interconnected ponds have been constructed in the South Fork of Sheep Creek drainage (see Photos 21-31). The series begins with Pond 1 in the upper portion of the drainage and continues on to Pond 5 in the lower portion of the drainage. Some subsurface flow reportedly occurs downgradient from Pond 5.

The ponds are used to collect and manage both stormwater and the seepage from the east side of the SED (with runoff from the FMTE now going directly to the upper end of Pond 5). A large diameter pipe and control valve passes through the dam at the lower (deep) end of each pond. The pipe and manual valve arrangement allows for the transfer/gravity flow of water from one pond to the next. To manage the water in the ponds (and, in theory, to prevent the overtopping of Pond 5), the water in Pond 5 is pumped back to Pond 2 whenever the water in Pond 5 reaches a certain level. Similarly, the water from Pond 2 is pumped to the South Central Pit Pond (a distance of slightly more than one mile) whenever the water in Pond 2 reaches a specified level. Until recently, the pumps in Ponds 2 and 5 were manually operated. This meant that someone needed to inspect the ponds on at least a daily basis. During the opening conference, I learned that operation of the pump-back system is now automated. Reportedly, the ponds are still inspected on at least a daily basis. An alarm system will alert staff in the event of any system malfunction.

VII. Stormwater Pollution Prevention Plan (SWPPP) Review

Upon conclusion of the opening conference, Mr. Crowther and I joined Nu-West employees Fredrick Partey, Amber Leichty, and Tom Miller in the office of Site Supervisor Scott Donahoo to review the SWPPP. My review led to the following observations:

- The NWRRM SWPPP is a large document. It is not particularly well organized; some required documentation was difficult to locate (even for members of the NWRR Stormwater Pollution Prevention team). Information I was unable to locate at the time of the inspection included a list of potential pollutant sources, documentation that required BMP maintenance had been conducted (this issue was related to a problem identified on one of the routine facility inspections), and training documentation for site supervisor Scott Donahoo (the latter was located and provided to me before I left the site). The list of potential pollutant sources and corrective action information from the site maintenance log was later sent to me via email.

- I was unable to locate a schedule in the SWPPP for conducting routine facility inspections as required by Part 4.1.1 and Part 5.1.5 of the 2008 MSGP.

- The SWPPP lacks sufficient information to demonstrate that training provided to employees who are responsible for implementing activities necessary to meet the conditions of the MSGP (e.g., the Stormwater Pollution Prevention Team members) satisfies the requirements of Part 2.1.2.9 of the MSGP.

VIII. Site Tour

Following my review of the SWPPP, Mr. Donahoo, Mr. Miller, and Ms. Liechty provided Mr. Crowther and me with a complete tour of the NWRRM site (Mr. Hart needed to catch a plane and was unable to accompany us on the site tour). I told Mr.

Donahoo that I was would like to begin with a visit to the top of the SED so I could observe the area where the FMTE cover system had been installed. From there we visited Ponds 1-5 in the South Fork of Sheep Creek drainage before visiting the actively mined area in the northern portion of the facility.

SED and the FMTE Cover System

Installation of the FMTE cover system required the development of an access road to the top of the SED. From the NWRRM office complex Mr. Donahoo drove us up this new access road along the northern and western side of the SED. As we drove up the road I noted that an alternating series of rock check-dams and straw wattle dams had been installed in the borrow pit along the bank-side of the dirt access road to control erosion (see Photos 10-12). I also noted, and pointed out, that most of the dams had been overtopped with sediment.

At the top of the SED we left the vehicle to tour the FMTE on foot. I saw that an electric fence had been installed to prevent cattle from having access to the vegetative cover side of the FMTE. On the far (downgradient) side of the electric fence, a silt fence was being installed near the uppermost edge of the FMTE (see Photo 13). Walking downhill along the boundary between the rock armored and the vegetative cover section of the FMTE, I observed what appeared to be fresh earthwork on the vegetative side. Midway down the slope, where the rock-lined channel diverts stormwater runoff from the surface of the FMTE to the collection system described in Section VI, I observed sediment residue in the interstitial spaces between the rocks. The sediment residue was particularly noticeable in the area directly below the fresh earthwork along the rock armor/vegetative cover boundary of the FMTE (see Photos 14-18). I asked the three Nu-West employees if any of them were aware of any problems with erosion in that particular area. All three claimed to unaware of any particular issues.

Note: During the closing conference and in the weeks after my inspection, I requested additional information relating to the FMTE. I learned that there had, in fact, been significant erosion events in 2013 and 2014 (see "*Answers to the questions from Pat Stoll, EPA*" in Attachment B). When I requested a copy of any corrective action documentation (documentation required under Part 3 of the 2008 MSGP) I was provided with a copy of a maintenance log prepared by Arcadis U.S. Inc., a contractor working on behalf of Agrium's Mining Programs and Remediation section (managed by Mitch Hart). The maintenance log (also included in Attachment B) documents a number of instances involving significant erosion at the SED and subsequent corrective actions (corrective actions that were not documented in the annual reports submitted to EPA for this time period).

South Fork of Sheep Creek Drainage Pump-Back System

After leaving the crest of the SED, Mr. Donahoo drove us back down the SED access road. At the intersection with the mine haul road, we headed south to the southern end

of the NWRRM and the South Fork of Sheep Creek drainage. Our route took us along the cut slope and barrow area on the east side of the SED. Evidence of rill erosion along sections of the slope above the haul road was obvious (see Photo 20). From the haul road at the south end of the NWRR, we drove down a short access road alongside water management Ponds 1-5.

Stopping near the last of the ponds in the series (Pond 5), Ms. Liechty pointed out the new automated control system for the pumps at Pond 5 and Pond 2. Walking around Pond 5, I noted what appeared to be a system for controlling the discharge of surface runoff from the FMTE cover system. A section of 18" HDPE pipe coming from under the access road was connected to the inlet of a T-shaped connector. Both of the connector outlets were equipped with large control valves that could apparently be operated manually or automatically (the three Nu-West employees stated that they were not familiar with operational details of the system – that it was managed by Agrium's Mining Programs and Remediation section). Depending on the configuration of the valves, water passing through the T-shaped connector could pass straight through the connector and enter the upper end of Pond 5 or be directed 90 degrees through the connector, bypassing Pond 5 via a lengthy section of 18" HDPE (see Photos 22-23). I noted that a portion of the bypass section of the 18" HDPE pipe had been removed but was still sitting nearby. It seemed likely that this one section had probably been removed to provide access to install the automated control system. It also seemed likely that it would be relatively easy to replace the section that had been removed. Replacement of this section would allow for a direct discharge of surface runoff from the SED to the South Fork of Sheep Creek drainage below Pond 5 (see Photos 24-26) rather than containment of the discharge on-site. Though the NWRRM staff present during the site tour assured me that this would never take place, the valve arrangement and piping system suggests that it could be used to bypass the pump-back water management ponds during periods of peak flow (e.g., the type of flows that were most likely responsible for the erosion of the FMTE cover).

Note: The piping and valve system for controlling the surface runoff discharge from the SED and the FMTE has some additional features worth noting. The outfall to Pond 5 appears to be equipped with a transducer for measuring flow. A solar energy panel is mounted nearby (as shown in Photo 22). These may be part of the data logger noted in "*Answers to the questions from Pat Stoll, EPA"* (see Attachment B). The valves for managing the direction of flow through the T-connector appear to have both an electric actuator and a manual control wheel.

North Rasmussen Ridge and Panel B

From the South Fork of Sheep Creek drainage Mr. Donahoo drove us to the opposite (northern) end of the NWRRM. We stopped at various points along the way so I could get out of the vehicle to examine stormwater retention ponds and other stormwater management features. At the far end of the NWRRM we drove down into Panel B, the only area that was being actively mined. From the north end of Panel B, we could look down into Reese Canyon. Mr. Donahoo indicated that Nu-West was currently working

with the Forest Service and the Bureau of Land Management to obtain a permit that would allow for mine expansion into Reese Canyon (see Photo 33). He also indicated that Nu-West had recently submitted a "***North Rasmussen Ridge Mine Reese Canyon Creek Insignificant Degradation Analysis***" to IDEQ as part of the expansion plan (see Attachment D).

Central Pit Water Management Pond

The large pond at the southern end of the central pit is used for the management of stormwater from various locations around the NWRRM. The many stormwater retention ponds around the facility are pumped out (with vacuum trucks) when the ponds approach 50% of their capacity and the water is transferred to the central pit. The combination of seepage from the SED and stormwater collected in the pump-back ponds located in the South Fork of Sheep Creek drainage is also pumped to the central pit pond (this pond is probably the most significant feature of the pump-back system). The addition of two new earthen dams in recent years to fill in potential gaps in the original dam have increased the pond's capacity (see Photo 34). All water in the pond either infiltrates or evaporates. At the time of this inspection, the pond appeared to have a significant amount of freeboard. The NWRR staff claim that adequate capacity has not been an issue.

Fueling and Maintenance Area

Leaving the central pit area, we returned to the mine office complex. Before wrapping up the inspection, I indicated that I wanted to examine the fueling and maintenance area. Everything appeared to be in order – no sign of spills; all supplies, equipment, and waste properly contained and labeled. I did have a question about the apparent lack of secondary containment around a large used oil tank but environmental specialist Tom Miller was able to locate specifications indicating that the used oil tank was a double-walled tank with secondary containment built-in.

IX. Closing Conference

Upon conclusion of the site tour, the five of us returned to the office building for a closing conference. Based upon information gathered during the inspection, I shared the following concerns:

- **SWPPP Organization:** I noted that some of the required documents were not readily available during my review of the SWPPP. I explained that was important to make sure that all of the documents, records, and reports required by the MSGP are be available for review at the time of an inspection (I should note that the person who was reportedly the most familiar with the SWPPP, Joannie Theilman, was not on-site at the time of this inspection; Ms. Liechty was filling in for Ms. Theilman).

- **Inspection Schedule:** I explained the importance of making sure the SWPPP

includes a statement describing the inspection schedule followed by the mine.

- **Corrective Action:** I suggested that the facility review the corrective action requirements in Part 3 of the 2008 MSGP to make sure that they are in compliance with all of the documentation, mitigation, and reporting requirements.

- **Employee Training:** I noted that the SWPPP, in its current form, was weak when it came to describing or demonstrating the type of training provided to employees responsible for implementing activities necessary to meet the conditions of the permit; this was particularly true with respect to the members of the Stormwater Pollution Prevention Team.

- **Maintenance of Erosion and Sediment Controls/Best Management Practices (BMPs):** I expressed concerns about the obvious lack of BMP maintenance along the access road to the top of the SED.

Before closing the conference, I also expressed concerns regarding my observations during our visit to the SED and the FMTE cover system. These observations, I explained, had led me to believe there may have been some serious erosion issues and subsequent corrective actions in that area. I asked the NWRRM staff to check with Agrium's Mining Programs and Remediation section to see if they could help clarify this.

Upon conclusion of the closing conference, I thanked the NWRRM staff for their time and assistance and invited them to contact me if they had any questions. I also asked for an update once they relayed my questions about the SED and the FMTE to the Mining Programs and Remediation section managed by Mr. Hart. Mr. Crowther and I then left the site at 5:00 pm.

X. Areas of Concern

The following areas of concern were noted during the course of this inspection:

1) **SWPPP Organization:** As noted in the ***Closing Conference*** section above, I had concerns about the organization of the SWPPP. Part 5 of the MSGP identifies a number of items that must be included in the document. Some of these items were not readily available at the time of this inspection (e.g., summary of potential pollutant sources, certain employee training records, documentation of corrective actions, and details relation to the facility's inspection schedule). Most were eventually located and provided to me by the end of the inspection or in the following days. As noted previously in this report, the individual with the primary role for managing these documents, Joannie Theilman, was not available at the time of this inspection. This may have led to some of the issues noted herein but better organization of the SWPPP and the inclusion of greater detail (e.g., employee training, inspection

schedule, corrective actions) would alleviate many of these concerns.

2) **Maintenance of BMPs**: As described in Sections VIII and IX of this report, I noted that most of the erosion check dams (rock and wattles) located on the bank-side of the access road to the top of the SED had been overtopped with sediment (see Photos 10-12). This maintenance issue involving BMPs does not appear on any of the routine inspection reports for the mine.

3) **MSGP Non-Compliance Associated with the SED and the FMTE Cover System**: This ***Area of Concern*** is related to #2 above but is much broader in scope. Based upon information I obtained during and after my inspection at the NWRRM, it would appear that the work associated with the FMTE cover project, and the SED in general (at least since the time that work began on the FMTE cover), has not been addressed in the NWRRM SWPPP. Despite the fact that there have been significant erosion events (suggesting possible BMP failures) and subsequent corrective actions at the SED, none of these are documented in the SWPPP. The significant erosion issues are not identified on any of the routine facility inspection forms (in fact, the local NWRRM staff claimed to be unaware of the issues). There is no documentation of maintenance and/or control measures as required in Part 5.4 of the 2008 MSGP. None of the corrective actions associated with the SED and/or the FMTE cover are documented in the annual reports (required in Part 7.2 of the 2008 MSGP) submitted to EPA for either the September 29, 2012 to September 29, 2013 or the September 29, 2013 to September 29, 2014 reporting period (see Attachment C). It would appear that the Agrium group responsible for managing the SED/FMTE cover project has been operating separate from the NWRRM Stormwater Pollution Prevention Team. This apparent disconnect may be responsible for the failure to comply with the requirements of the 2008 MSGP at the SED.

Nu-West Industries, Inc.
Rasmussen Ridge Mine
Report Completion Date: 01/07/2015

Inspector:

Patrick Stoll, EPA/R10/IOO
Lead Inspector

Attachment A
Photo Log

Nu-West Industries, Inc./Rasmussen Ridge Mine
MSGP Compliance Evaluation Inspection

Inspection site or facility name:	Nu-West Industries, Inc./Rasmussen Ridge Mine (a subsidiary of Agrium, Inc.)
Physical Location:	3826 Blackfoot River Road Soda Springs, Idaho 83276
NPDES ID #:	Tracking # IDR05C017
Type of Inspection:	MSGP Stormwater Compliance Evaluation Inspection
Date of Inspection:	September 25, 2014
Inspector(s):	Patrick Stoll, EPA/R10/OCE/IEMU/IOO
Image capture device:	Panasonic Lumix DMC-TS4
Original file type, pixel dimensions, and file #s, (assigned by camera):	JPG; 4000 x 3000 pixels; Image numbers P1000787-P1000820
Photo Log Image ID #s:	Images numbered: 1-34
Digital images recorded by:	Patrick Stoll unless otherwise noted
Drainage/flow direction:	

Photo No. 1 (Google Earth imagery date 10/7/2014)
Nu-West Rasmussen Ridge Mine

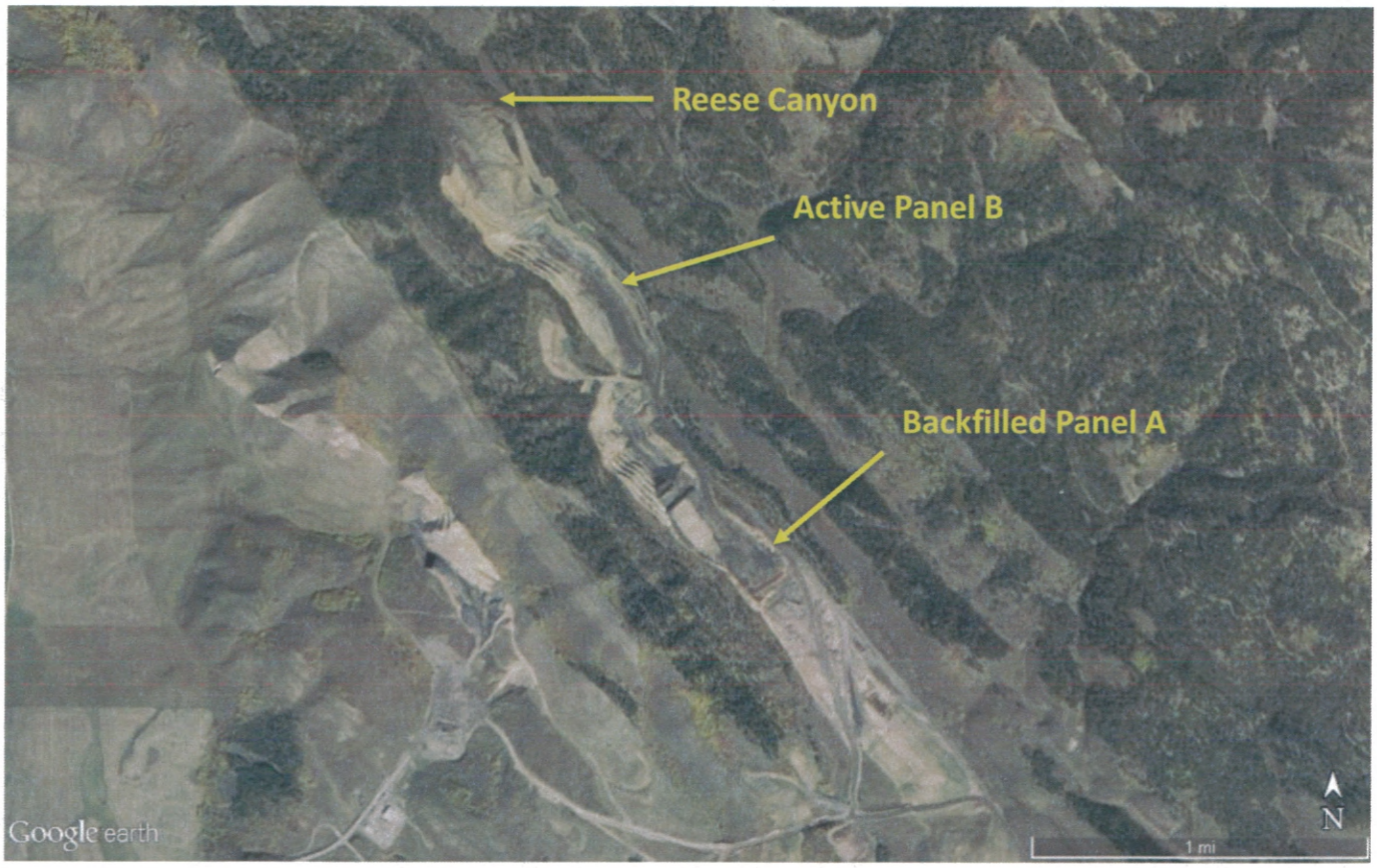


Photo No. 2 (Google Earth imagery date 10/7/2014)
Nu-West Rasmussen Ridge Mine
North Rasmussen – Panels A & B and north end of Central Rasmussen

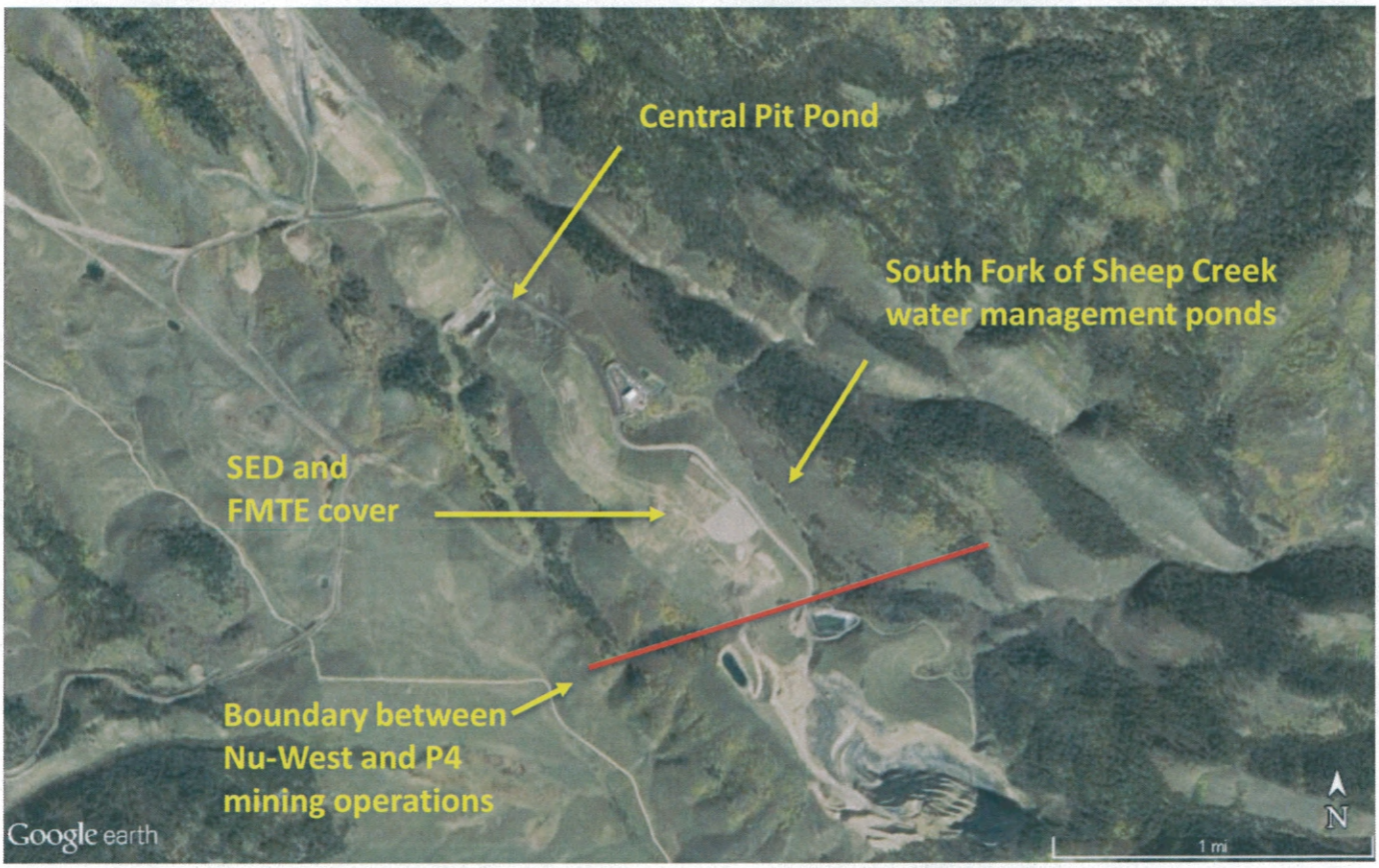


Photo No. 3 (Google Earth imagery date 10/7/2014)
Nu-West Rasmussen Ridge Mine
Central and South Rasmussen

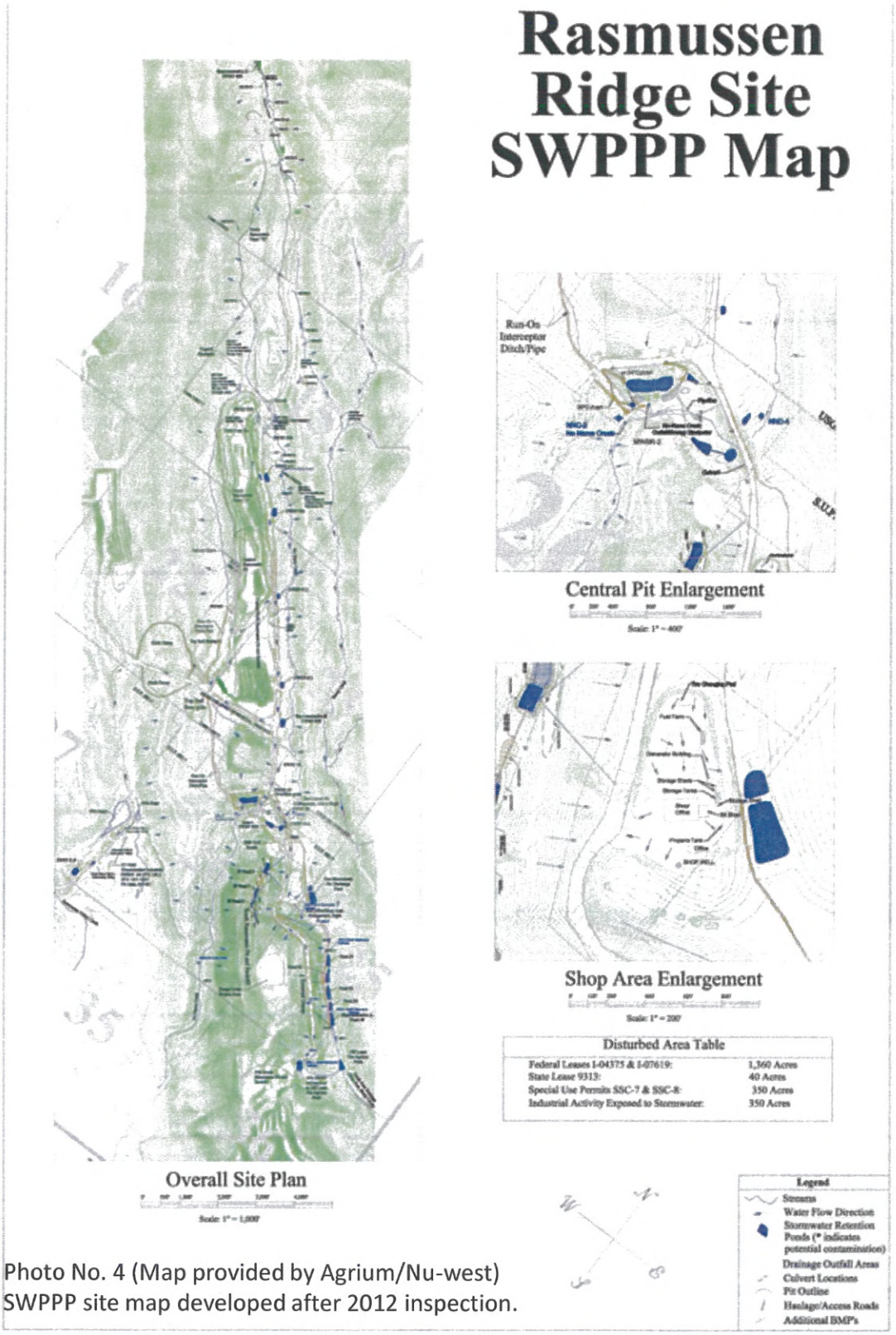
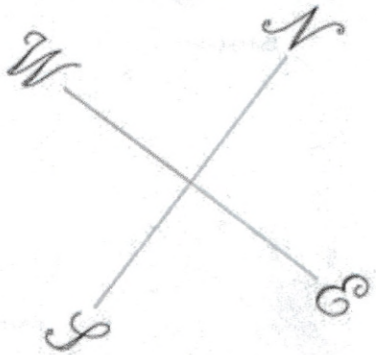


Photo No. 4 (Map provided by Agrium/Nu-west)
SWPPP site map developed after 2012 inspection.

Disturbed Area Table	
Federal Leases I-04375 & I-07619:	1,360 Acres
State Lease 9313:	40 Acres
Special Use Permits SSC-7 & SSC-8:	350 Acres
Industrial Activity Exposed to Stormwater:	350 Acres



Legend

- Streams
- Water Flow Direction
- Stormwater Retention Ponds (* indicates potential contamination)
- Drainage Outfall Areas
- Culvert Locations
- Pit Outline
- Haulage/Access Roads
- Additional BMP's

Update: 9/18/12

Photo No. 5 (Map provided by Agrium/Nu-west)
SWPPP site map legend

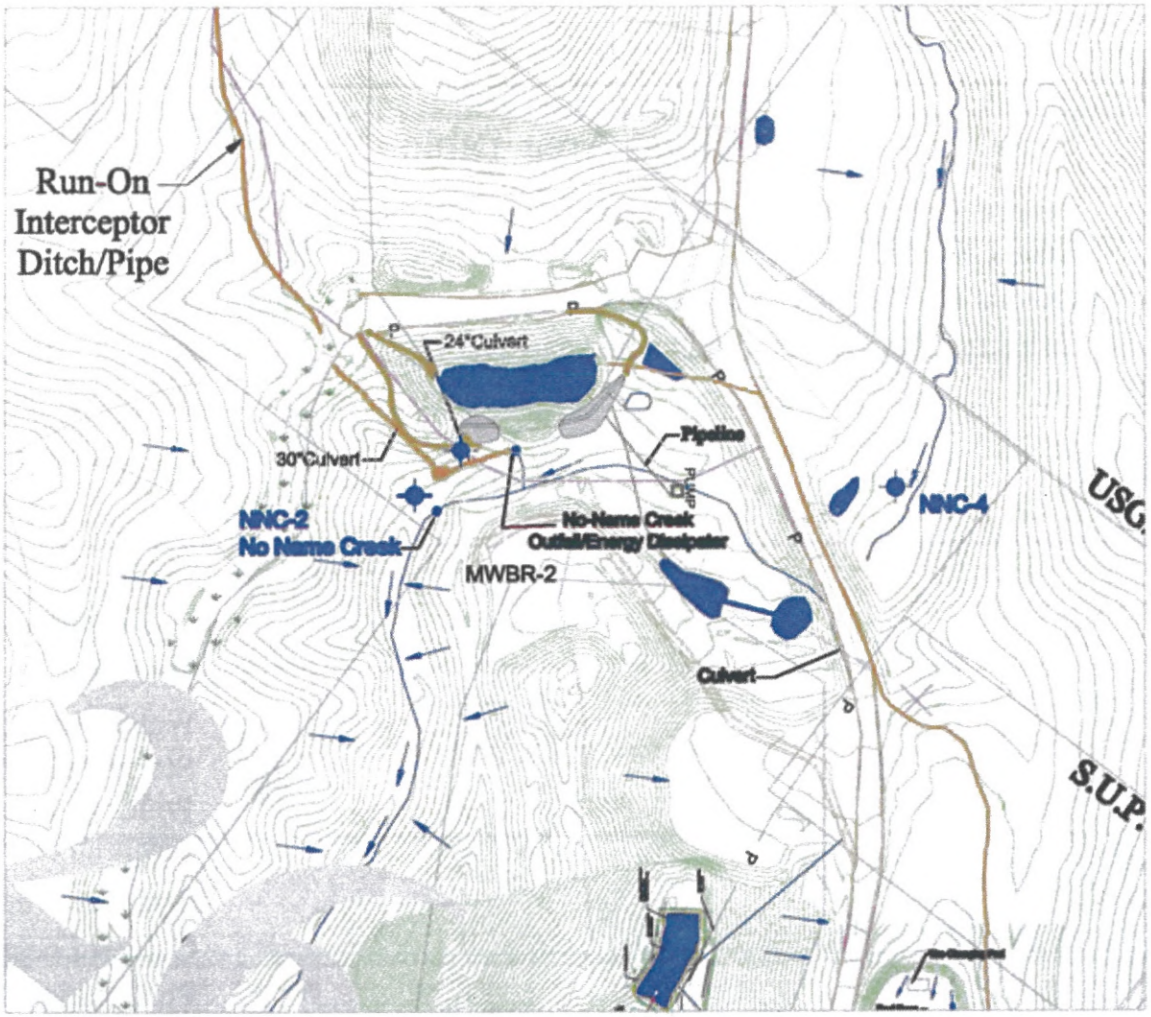
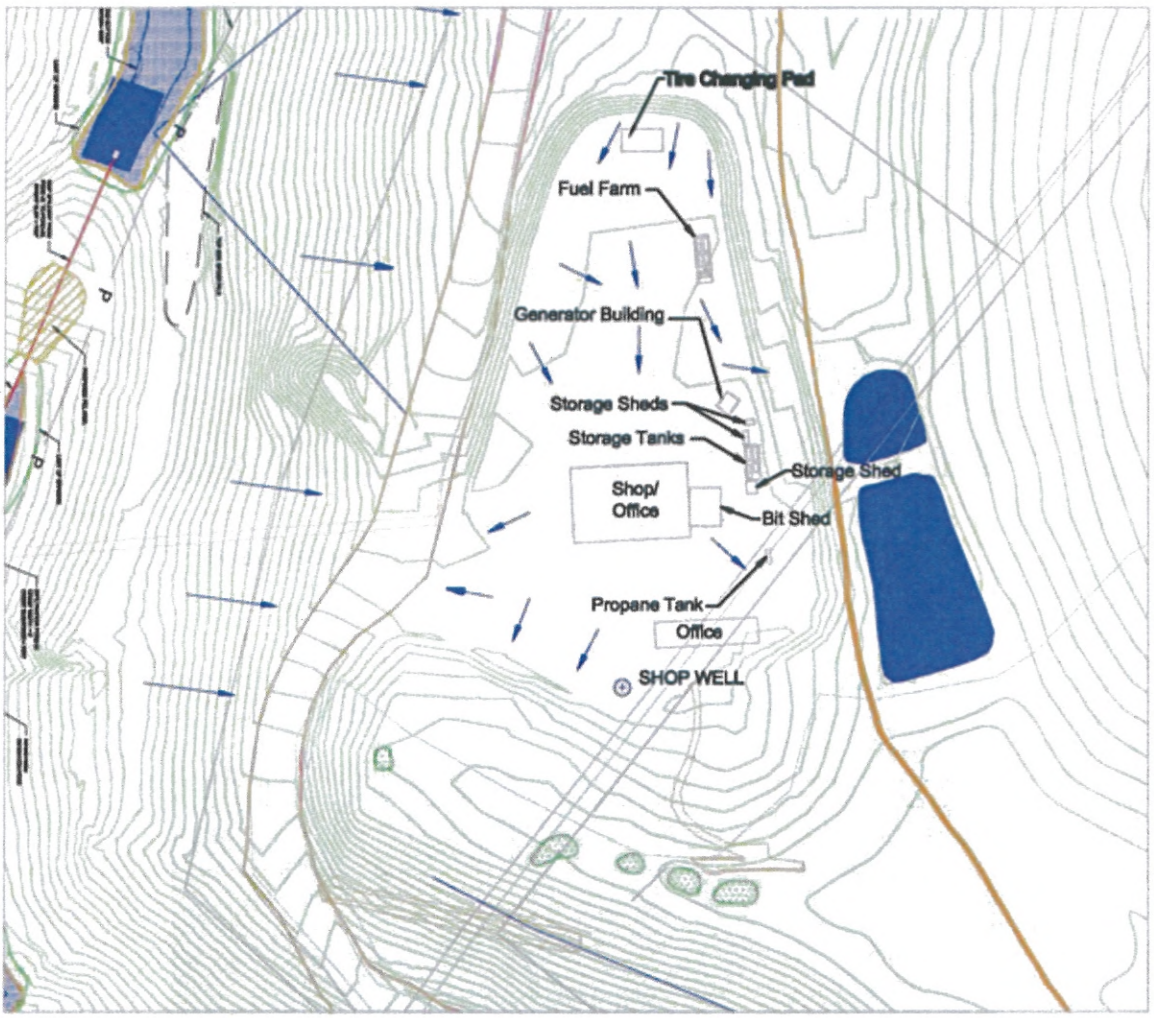


Photo No. 6 (Map provided by Agrium/Nu-west)
Central pit details from SWPPP site map; In theory, all stormwater and leachate from the pump-back system is managed here.



Shop Area Enlargement

0' 100' 200' 400' 600' 800'

Scale: 1" = 200'

Photo No. 7 (Map provided by Agrium/Nu-west)
Shop, maintenance, and office area from SWPPP site map

Photo No. 8 (P1000787)
Facing north – the Central Pit Pond from the SED access road

Photo No. 9 (P1000819)
Facing south – this photo, made from a shelf above the Central Pit Pond, shows the access road to the top of the SED.

Photo No. 10 (P1000797)
Facing north – the access road to the top of the SED exhibited extensive erosion in the borrow area on the east side of the road; check dams were overtopped with sediment.

Photo No11 (P1000798)
Overtopped rock check dam on access road to top of SED.

Photo No. 12 (P1000799)
Overtopped straw wattle check dam on access road to top of SED.

Photo No. 13 (P1000789)
Facing north – electric fence outside of the silt fence being installed along the upper border of the vegetated side of the FMTE.

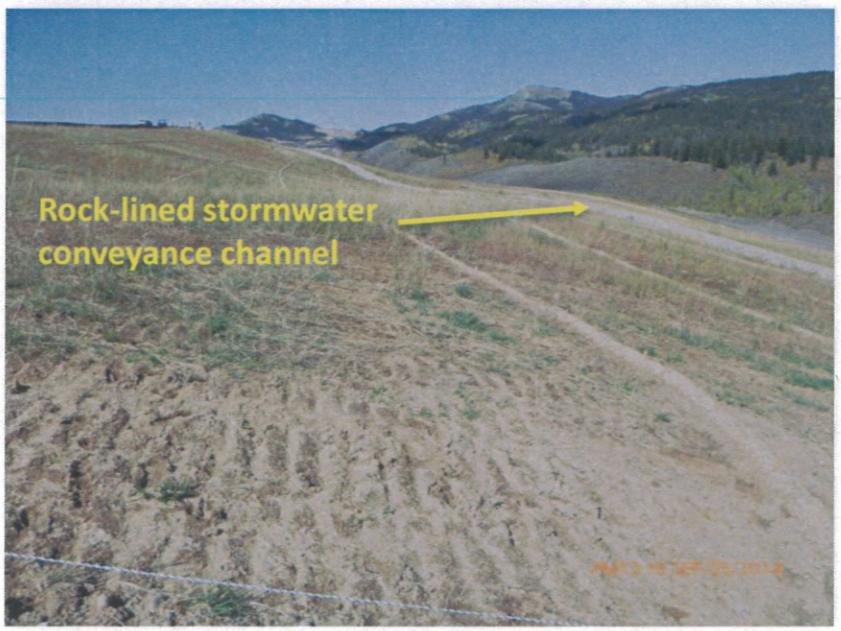


Photo No. 14 (P1000790)
Facing north – track marks along the southern border of the boundary between the vegetated and the rock-armored cover suggest the possibility of recent erosion.

Photo No. 15 (P1000792)
Facing south – the rock-armored side of the FMTE cover

Photo No. 16(P1000793)
Facing west – the boundary between the vegetated and the armored side of the FMTE is apparent in this photo.

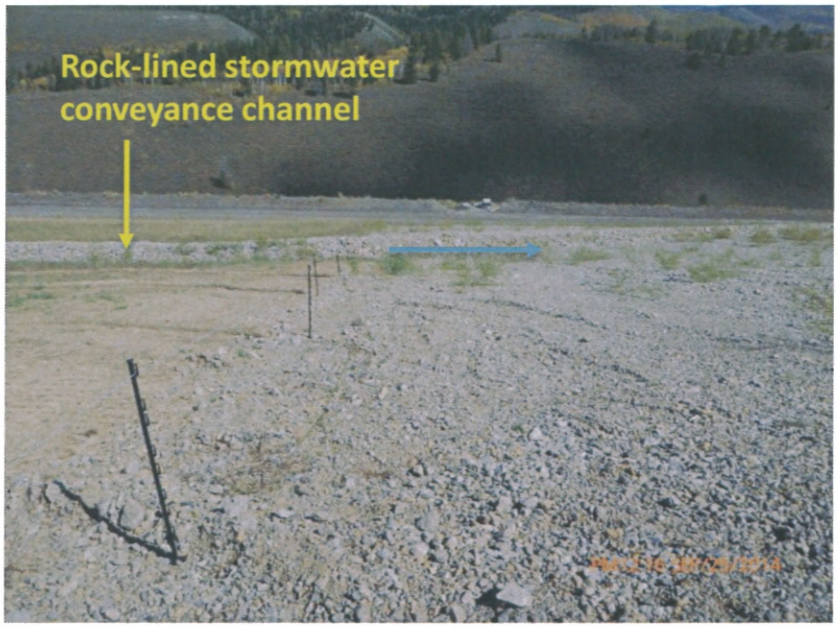


Photo No. 17 (P1000791)
Facing east /looking downward – the boundary between the vegetative and the rock-armored side of the FMTE is obvious.

Photo No. 18 (P1000794)
Facing northeast –the space between the rocks in the stormwater channel is filled with sediment in this section of the channel.

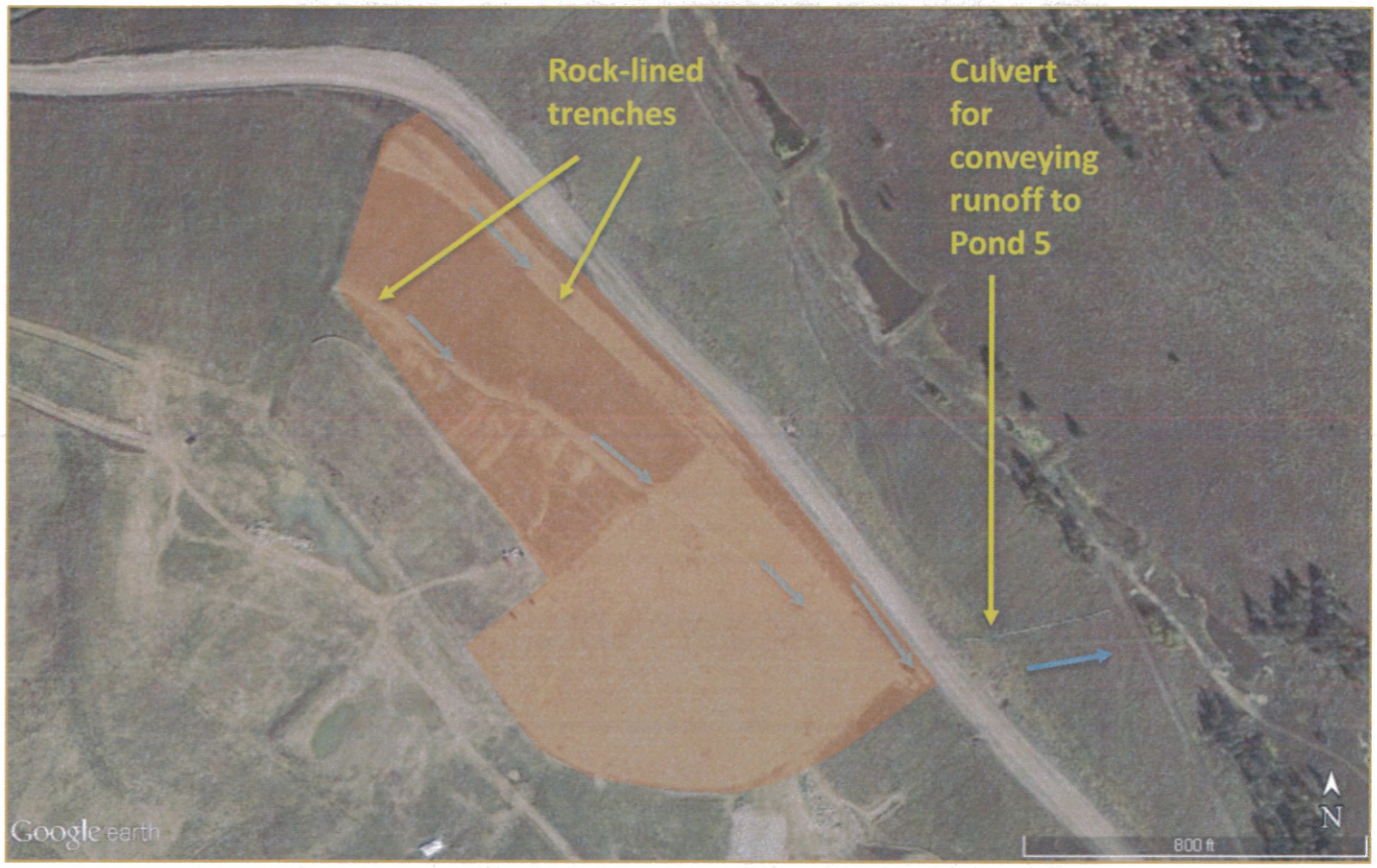


Photo No. 19 (Google Earth imagery date 10/7/2014)
South External Dump (SED) and Focused Mitigation Technology Evaluation (FMTE) cover system; note the rock-lined trenches for diverting runoff to Pond 5 in South Fork of Sheep Creek drainage.

Photo No. 20 (P1000813)
Facing west – rill erosion near the base of the SED along the haul road

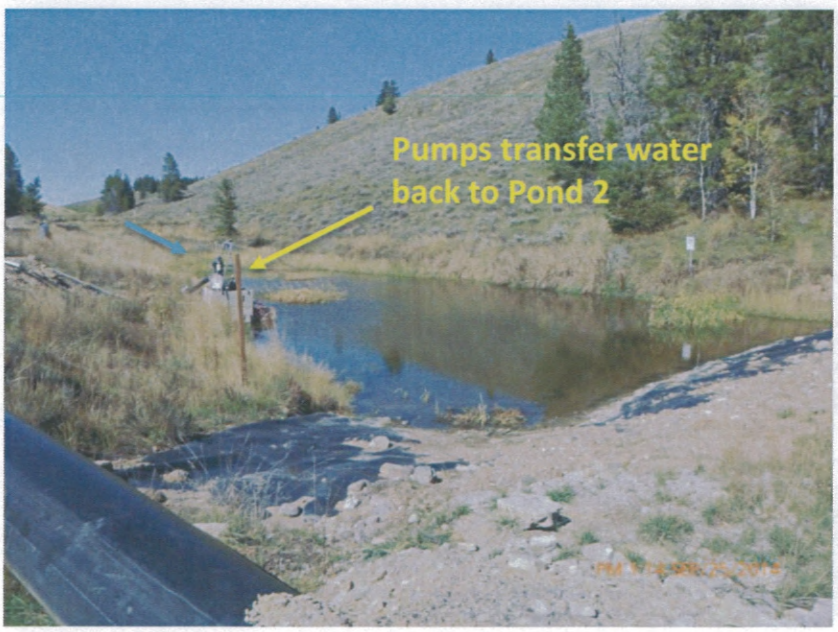


Photo No. 21 (P1000801)
Facing north – Pond 5 is the last in a series of water management ponds in the South Fork of Sheep Creek drainage; water from this pond is automatically pumped back to Pond 2 when water reaches a certain level.

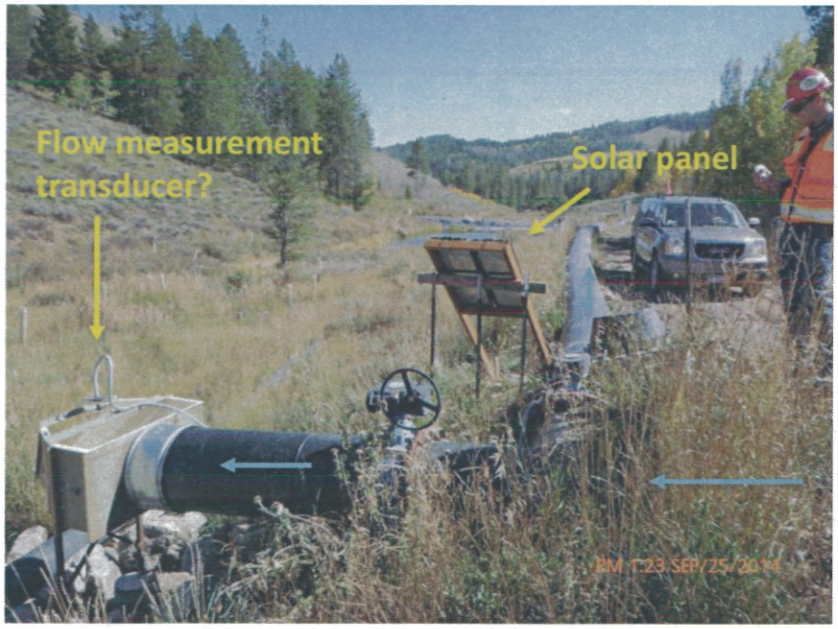


Photo No. 22 (P1000803)
Facing south– runoff from the FMTE cover system is discharged to the upper end of Pond 5 at this location. It would appear that water could potentially be be diverted to the drainage below Pond 5, completely bypassing the pond in the process.

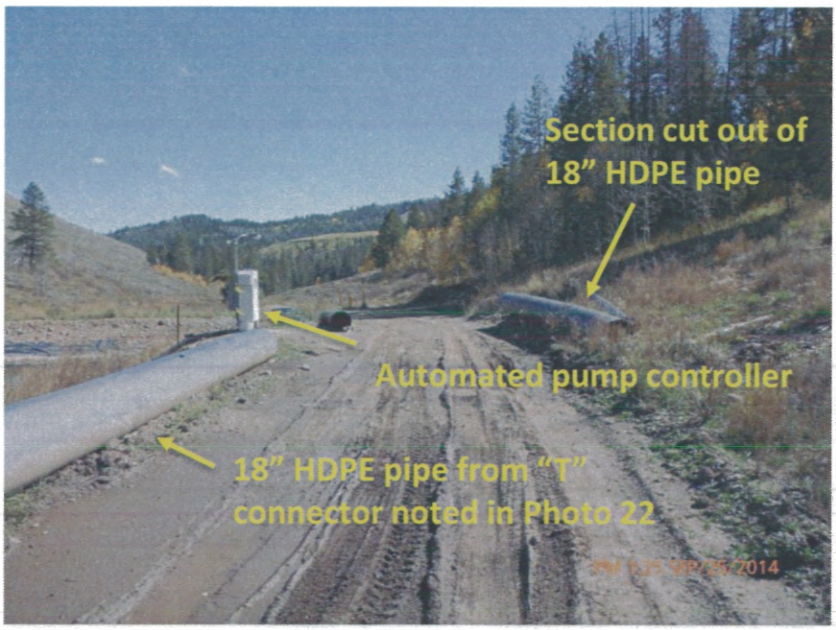


Photo No. 23 (P1000804)
Facing south – it appeared that a section of the 18" HDPE pipe had been removed from what appeared to be a bypass line; Nu-West staff could not explain the purpose of the line at the time of this inspection.

Photo No. 24 (P1000805)
Facing north – the 18" HDPE line noted in Photos 22 and 23 could discharge water to the drainage below Pond 5 if the section sitting along the road was re-installed.

Photo No. 25 (P1000806)
Facing southeast – this is the location where the 18" HDPE could potentially discharge directly to the South Fork of Sheep Creek drainage, bypassing the water management ponds altogether.

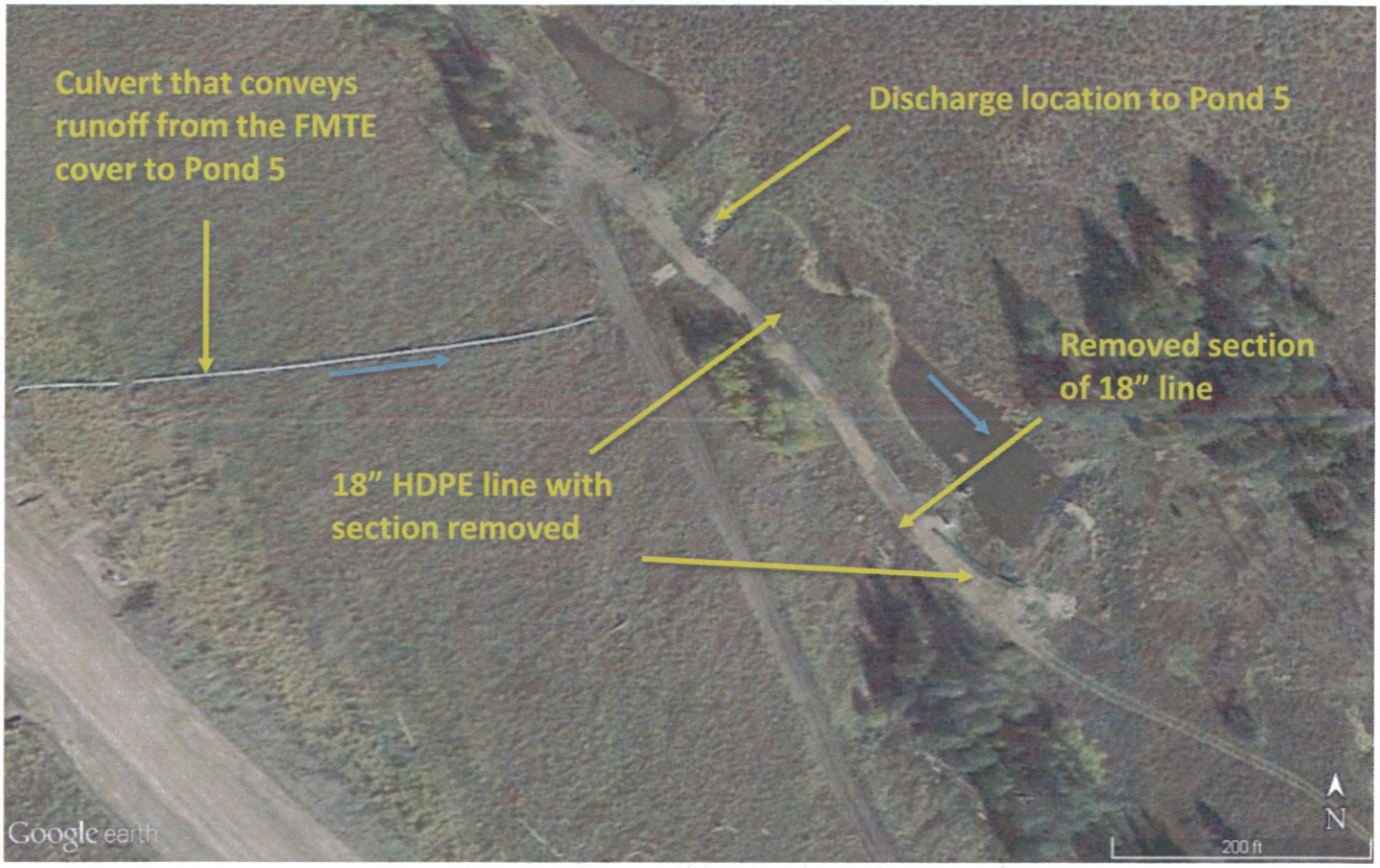


Photo No. 26 (Google Earth imagery date 10/7/2014)
This aerial photo shows the culvert that conveys runoff from the SED and the FMTE to the upper end of Pond 5. The 18" bypass line is visible in the photo.

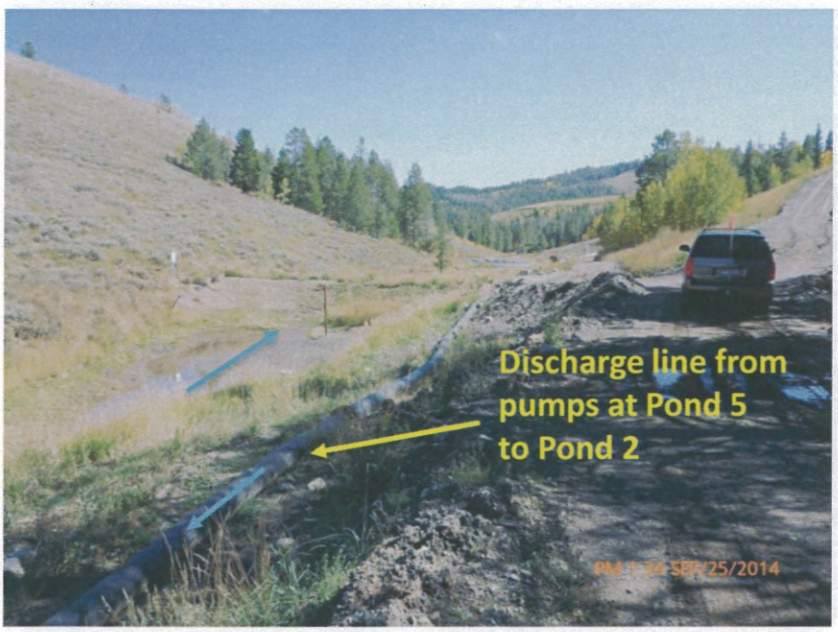


Photo No. 27 (P1000807)
Facing southeast – pump-back Pond 4. .

Photo No. 28 (P1000808)
Facing east – pump-back Pond 3

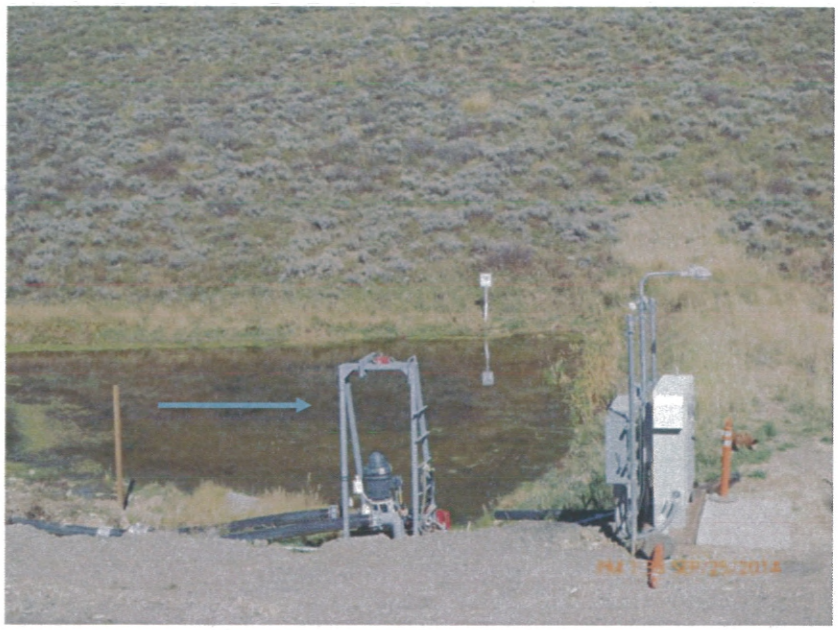


Photo No. 29 (P1000809)
Facing east – pump-back Pond 2; water from this pond is automatically pumped to the Central Pit Pond. .

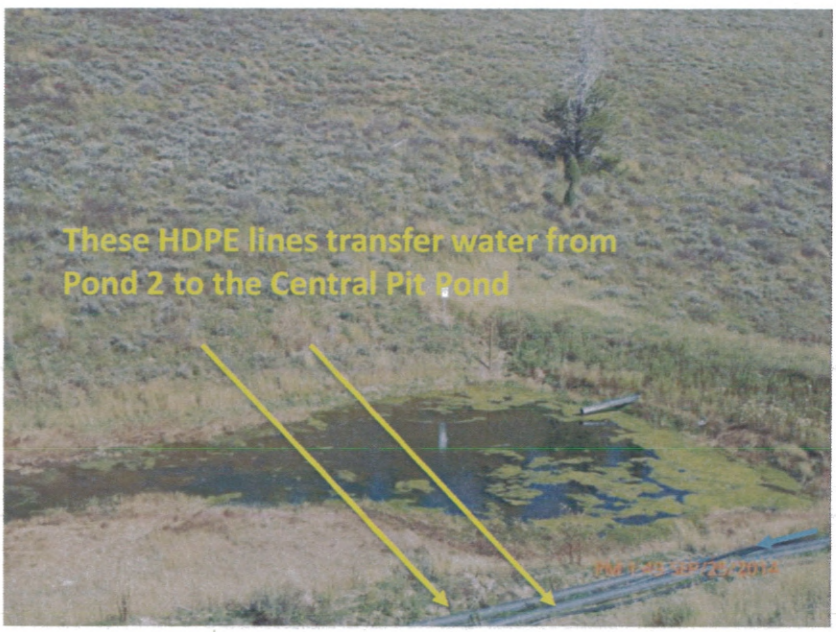


Photo No. 30 (P1000811)
Facing southeast – pump-back Pond 1

Photo No. 31 (P1000812)
Facing southeast – pump-back Ponds 1 & 2

Photo No. 32 (P1000815)
Hydraulic mining shovel in Panel B of North Rasmussen Mine

Photo No. 33 (P1000817)
Facing north – Reese Canyon; Nu-West has plans to mine in this area as well.

Photo No. 34 (P1000819)
Facing south – this is the Central Pit Pond; note the two sections where the height of the dam has been increased to provide additional freeboard.

Photo No. 35 (P1000820)
Facing northeast – the fuel farm at the NWRR mine

Attachment B
Nu-West Rasmussen Ridge Mine
Response to Questions
and Maintenance Log Prepared by Arcadis U.S. Inc.

Answers to the questions from Pat Stoll, EPA:

- **What has the peak flow been off the FMTE?**
  - *The datalogger previously installed at the velocity dissipater (VD-1) was discovered to be improperly calibrated in May 2014. A flume attached to the end of the VD-1 culvert was installed in June 2014 with a new datalogger. Continuous flow measurements began on June 20, 2014. The peak flow measured between June 20, 2014 and August 20, 2014 was 0.006 cubic feet per second (cfs).*
  - *Manual measurements were collected on April 28, 2014, May 19, 2014, and June 19, 2014. The peak flow of 0.17 cfs was measured on May 19, 2014.*

- **What is the average flow off the FMTE?**
  - *Flow varies significantly throughout the year. Flows are relatively constant during the spring snowmelt and range from 0.042 to 0.17 cfs, based on manual measurements collected in 2014. Beginning in June, flows from the FMTE become intermittent and occur following storm events.*

- **What times of year do you see the most/least flow off the FMTE?**
  - *The highest flows are observed during the spring snowmelt and immediately following late summer thunderstorms. Flow becomes intermittent in June through the beginning of the winter season.*

- **When was the FMTE seeded?**
  - *There have been a total of three seeding events at the FMTE: 2012, September 2013, and September to October 2014. The initial seeding took place in 2012 during reclamation following construction. Reseeding of erosion repair areas was conducted in 2013 and in 2014.*

- **Was the rock lined trench put in the same time and year the rest of the work was done on the FMTE?**
  - *Construction of the FMTE was conducted in 2012. The upper and lower water bars were specified in the FMTE Construction Work Plan and were installed in 2012 during the initial construction of the FMTE.*

- **How far down is the GCLL on the FMTE?**
  - *The geosynthetic clay laminate liner (GCLL) is 2 feet below the surface of the cover material.*

- **Has there been a significant erosion event on the FMTE?** -- Pat noted and took pictures of the sediment that was in the rock ditch where the two divisions come together (the seeded side of the FMTE and the rocked side of the FMTE.) He also noted and took pictures of the line where the two divisions join. It appears there had been some new ground work done there as the vegetation growth wasn't the same as the rest of the hill.
  - *Yes, significant erosion has occurred in 2013 and 2014 following the spring snowmelt and late summer thunderstorms on the soil cover portion of the FMTE. Repairs have been conducted during the 2013 and 2014 field seasons. The most recent significant erosion event occurred following the record-high precipitation event that occurred on August 23, 2014.*

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535

MEMO

To:
Mitch Hart, Agrium
James Williams, Agrium

Copies:
Anjali MacDonald, ARCADIS
Gordon Levin, ARCADIS
Tom Steiner, ARCADIS

From:
Drew Werth, ARCADIS
Mishal Al-Johar, ARCADIS

Date:
December 12, 2014

ARCADIS Project No.:
CO001907.0001

Subject:
2014 Maintenance Log for FMTE and SBA
South and Central Rasmussen Ridge Area
Caribou County, Idaho

The objective of this memorandum is to document erosion and sediment control observations and maintenance activities performed at the Focused Mitigation Technology Evaluation (FMTE) and South Borrow Area (SBA), located at the South Central Rasmussen Ridge Area (SCRRA).

Observation and Maintenance Log

June 19, 2014: The FMTE area soil cover test plot was inspected and the following issues were noted:

- Gully erosion upgradient of the upper water bar
- Gully erosion downgradient of the lower water bar
- Poor vegetative growth in areas on the soil cover

June 20 – August 19, 2014:

- No change in observed conditions.
- Overall repair recommendations were being developed and arrangements were being made for maintenance of observed issues.

August 20, 2014: FMTE area inspected immediately after a heavy rainfall event that resulted in compounding of erosion issues within the FMTE area.

August 21 – September 3, 2014:

- No further change in observed conditions.
- Repair recommendations updated for compounding erosion issues.

September 4, 2014: Repair activities at the soil cover portion of the FMTE were initiated and included the following items:

- Repair of gully erosion above the upper water bar and below the lower water bar
- Hydroseeding of erosion repair areas above upper water bar
- Replacement of rock armor in erosion repair areas below lower water bar
- Installation of 5 rows of straw wattle in erosion repair areas above upper water bar.
- Installation of silt fence at the break in slope at the top of the FMTE area soil cover test plot

September 4, 2014: The South Borrow Area (SBA) was inspected and the following items were noted:

Northern portion of SBA

- Overtopping of water control channel as evidenced by rills on and below downgradient berm
- Movement / partial washout of riprap lining materials; gully erosion along edge of channel (outside of channel)
- Gully erosion between and around riprap check dams
- Gullying on steep slope at edge of road
- General area upgradient of channels: Poor vegetative growth with soil loss due to rill and gully erosion

Southern portion of SBA

- Gully erosion along edge of channels (outside of channels)
- Accumulation of sediments / loss of capacity within channels
- General area upgradient of channels: Poor vegetative growth with soil loss due to rill and gully erosion

September 5 – 27, 2014:

- Ongoing maintenance activities at the FMTE.
- Repair recommendations were being developed for the SBA.

September 28 – October 1, 2014: Continuous rainfall dropped more than 3 inches of rain on the site. FMTE area inspected immediately thereafter and observed additional erosion of recently-repaired portions of the FMTE area. The following additional observations were made:

- Rainfall amount exceeded capacity of temporary protection measures
- Vegetation had not yet established in recently disturbed areas
- Damage to the wattles due to cattle grazing on the FMTE and SBA
- A weak point at one of the upper silt fence splice locations, which contributed to cascading effects downgradient from the weak point
- Potential inadequacy of underdrain system, inadequate compaction of cover soils, and/or high plasticity cover soils (assessed to be beyond the current scope of repairs)

October 2, 2014: Repair activities at the SBA were initiated and included the following items:

- Hydroseeding of select areas
- Cleanout and reshaping of select drainage features
- Installation of additional rip rap material to select drainage features

October 3 – 8, 2014:

- Ongoing maintenance activities at the SBA.
- Additional repair recommendations were developed for the FMTE.

October 9, 2014: Additional round of repairs to the FMTE area initiated and consisted of:

- Installation of temporary electric fencing to prevent grazing cattle from entering sensitive areas
- Repair and reinforcement of the weak splice location in the upper silt fence
- Backfill and repair of gully erosion that occurred due to blowouts in the upper silt fence and downgradient wattles
- Repair of existing wattles and modifications to reduce flow to areas that experienced overtopping and blowouts (modifications consisted of incorporating "bump-ups" in the wattle alignments to isolate segments of concern from segments that had functioned as intended)
- Removal of accumulated sediments from behind wattles
- Reseeding and mulching of repaired areas

October 10 – 12, 2014: Ongoing maintenance activities at the FMTE.

October 13, 2014: Repairs to the FMTE were completed.

October 14 – 16, 2014: Ongoing maintenance activities at the SBA.

October 17, 2014: Repairs to the SBA were completed.

Attachment C
Nu-West Rasmussen Ridge Mine Annual Reports
2013 and 2014

NOV 18 2013

NOV 13 2013

NPDES Permit Tracking No.: IDR05C017

EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

Annual Reporting Form

A. GENERAL INFORMATION

1. Facility Name: Rasmussen Ridge Mine

2. NPDES Permit Tracking No.: IDR05C017

3. Facility Physical Address:

a. Street: 3826 Blackfoot River Road

b. City: Soda Springs c. State: ID d. Zip Code: 83276-

4. Lead Inspectors Name: Joannie Thielman Title: EH&S Compliance

Additional Inspectors Name(s): Jon Meixner Environmental Tech

5. Contact Person: Frederick Partley Title: EH&S Supervisor

Phone: 208-574-2080 Ext. 12007 E-mail: frederick.partley@agrium.com

6. Inspection Date: 09/25/2013

B. GENERAL INSPECTION FINDINGS

1. As part of this comprehensive site inspection, did you inspect all potential pollutant sources, including areas where industrial activity may be exposed to stormwater?
☑ YES ☐ NO

If NO, describe why not:

NOTE: *Complete Section C of this form for each industrial activity area inspected and included in your SWPPP or as newly identified in B.2 or B.3 below where pollutants may be exposed to stormwater.*

2. Did this inspection identify any stormwater or non-stormwater outfalls not previously identified in your SWPPP? ☐ YES ☑ NO

If YES, for each location, describe the sources of those stormwater and non-stormwater discharges and any associated control measures in place:

NOV 12 2014

RECEIVED
NOV 07 2014

NPDES Permit Tracking No.: IDR05C017

EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

Annual Reporting Form

A. GENERAL INFORMATION

1. Facility Name: Rasmussen Ridge Mine

2. NPDES Permit Tracking No.: IDR05C017

3. Facility Physical Address:

a. Street: 3826 Blackfoot River Road

b. City: Soda Springs c. State: ID d. Zip Code: 83276-

4. Lead Inspectors Name: Joannie Thielman Title: EH&S Compliance

Additional Inspectors Name(s): Amber Lictely Environmental Tech

5. Contact Person: Justin Skinner Title: Environmental Coord.

Phone: 208-574-2080 Ext. 1207 E-mail: justin.skinner@agrium.com

6. Inspection Date: 09/25/2014

B. GENERAL INSPECTION FINDINGS

1. As part of this comprehensive site inspection, did you inspect all potential pollutant sources, including areas where industrial activity may be exposed to stormwater?
☑ YES ☐ NO

If NO, describe why not:

NOTE: *Complete Section C of this form for each industrial activity area inspected and included in your SWPPP or as newly identified in B.2 or B.3 below where pollutants may be exposed to stormwater.*

2. Did this inspection identify any stormwater or non-stormwater outfalls not previously identified in your SWPPP? ☐ YES ☑ NO

If YES, for each location, describe the sources of those stormwater and non-stormwater discharges and any associated control measures in place:

NPDES Permit Tracking No.:
IDR05C017

3. Did this inspection identify any sources of stormwater or non-stormwater discharges not previously identified in your SWPPP? ☐ YES ☑ NO

If YES, describe these sources of stormwater or non-stormwater pollutants expected to be present in these discharges, and any control measures in place:

4. Did you review stormwater monitoring data as part of this inspection to identify potential pollutant hot spots? ☐ YES ☐ NO ☑ NA, no monitoring performed

If YES, summarize the findings of that review and describe any additional inspection activities resulting from this review:

5. Describe any evidence of pollutants entering the drainage system or discharging to surface waters, and the condition of and around outfalls, including flow dissipation measures to prevent scouring:

No evidence of pollutants entering any surface waters.

6. Have you taken or do you plan to take any corrective actions, as specified in Part 3 of the permit, since your last annual report submission (or since you received authorization to discharge under this permit if this is your first annual report), including any corrective actions identified as a result of this annual comprehensive site inspection?
☑ YES ☐ NO

If YES, how many conditions requiring review for correction action as specified in Parts 3.1 and 3.2 were addressed by these corrective actions? 02

***NOTE:** Complete the attached Corrective Action Form (Section D) for each condition identified, including any conditions identified as a result of this comprehensive stormwater inspection.*

C. INDUSTRIAL ACTIVITY AREA SPECIFIC FINDINGS

Complete one block for each industrial activity area where pollutants may be exposed to stormwater. Copy this page for additional industrial activity areas.

In reviewing each area, you should consider:

- Industrial materials, residue, or trash that may have or could come into contact with stormwater;
- Leaks or spills from industrial equipment, drums, tanks, and other containers;
- Offsite tracking of industrial or waste materials from areas of no exposure to exposed areas; and
- Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas.

INDUSTRIAL ACTIVITY AREA 01:

1. Brief Description:

Shop yard, including the fueling area

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised control measures necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA 02:

1. Brief Description:

Hot start line

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised c necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA 03:

Brief Description:

Storm Water Retention Ponds

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

NOTE: Copy this page and attach additional pages as necessary

INDUSTRIAL ACTIVITY AREA 04:

1. Brief Description:

Haul roads

2. Are any control measures in need of maintenance or repair? ☑ YES ☐ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

Culverts along Valley View, #4W-4E, 7 & 12. Culvert openings partially plugged, showing signs of damage at openings and separation at joints.

INDUSTRIAL ACTIVITY AREA 05:

1. Brief Description:

Tipple and stock piles

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA 06:

1. Brief Description:

Pit area

2. Are any control measures in need of maintenance or repair? ☑ YES ☐ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

Dust Suppression Well area, silt fence needs maintenance. It had been cut for access to the well and needs repaired.

NPDES Permit Tracking No.:
IDR05C017

D. CORRECTIVE ACTIONS

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # 01 of 02 for this reporting period.

2. Is this corrective action:

- ☐ An update on a corrective action from a previous annual report; or
- ☑ A new corrective action?

3. Identify the condition(s) triggering the need for this review:

- ☐ Unauthorized release or discharge
- ☐ Numeric effluent limitation exceedance
- ☐ Control measures inadequate to meet applicable water quality standards
- ☐ Control measures inadequate to meet non-numeric effluent limitations
- ☐ Control measures not properly operated or maintained
- ☐ Change in facility operations necessitated change in control measures
- ☐ Average benchmark value exceedance
- ☑ Other (describe): regular maintenance

4. Briefly describe the nature of the problem identified:

Culverts #4W -4E,7 &12 on the Valley Haul road were plugged off.

5. Date problem identified: 09/25/2014

6. How problem was identified:

- ☑ Comprehensive site inspection
- ☐ Quarterly visual assessment
- ☐ Routine facility inspection
- ☐ Benchmark monitoring
- ☐ Notification by EPA or State or local authorities
- ☐ Other (describe): _____

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination:

A backhoe was used to remove sediment from the culvert openings, damaged ends have been replaced and separated joints have been replaced.

8. Did/will this corrective action require modification of your SWPPP? ☐ YES ☑ NO

9. Date corrective action initiated: 10/01/2014

10. Date correction action completed: 10/21/2014 or expected to be completed: __/__/____

11. If corrective action not yet completed, provide the status of corrective action at the time of the comprehensive site inspection and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

NPDES Permit Tracking No.:
IDR05C017

D. CORRECTIVE ACTIONS

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # 02 of 02 for this reporting period.

2. Is this corrective action:

- ☐ An update on a corrective action from a previous annual report; or
- ☑ A new corrective action?

3. Identify the condition(s) triggering the need for this review:

- ☐ Unauthorized release or discharge
- ☐ Numeric effluent limitation exceedance
- ☐ Control measures inadequate to meet applicable water quality standards
- ☐ Control measures inadequate to meet non-numeric effluent limitations
- ☑ Control measures not properly operated or maintained
- ☐ Change in facility operations necessitated change in control measures
- ☐ Average benchmark value exceedance
- ☐ Other (describe): _____

4. Briefly describe the nature of the problem identified:

Silt fence had been cut to allow access to well.

5. Date problem identified: 09 / 25 / 2014

6. How problem was identified:

- ☑ Comprehensive site inspection
- ☐ Quarterly visual assessment
- ☐ Routine facility inspection
- ☐ Benchmark monitoring
- ☐ Notification by EPA or State or local authorities
- ☐ Other (describe): _____

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination:

A new section was added and the cut piece was put back together.

8. Did/will this corrective action require modification of your SWPPP? ☐ YES ☑ NO

9. Date corrective action initiated: 10 / 01 / 2014

10. Date correction action completed: 10 / 21 / 2014 or expected to be completed: __ / __ / ____

11. If corrective action not yet completed, provide the status of corrective action at the time of the comprehensive site inspection and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

NPDES Permit Tracking No.:
IDR05C017

E. ANNUAL REPORT CERTIFICATION

1. Compliance Certification

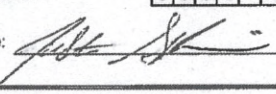
Do you certify that your annual inspection has met the requirements of Part 4.2 of the permit, and that, based upon the results of this inspection, to the best of your knowledge, you are in compliance with the permit? ☑ YES ☐ NO

If NO, summarize why you are not in compliance with the permit:

2. Annual Report Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Representative Printed Name: Justin Skinner Title: Environmentall Coord.

Signature:  Date Signed: 10-30-14

NPDES Permit Tracking No.:
IDR05C017

3. Did this inspection identify any sources of stormwater or non-stormwater discharges not previously identified in your SWPPP? ☐ YES ☑ NO

If YES, describe these sources of stormwater or non-stormwater pollutants expected to be present in these discharges, and any control measures in place:

4. Did you review stormwater monitoring data as part of this inspection to identify potential pollutant hot spots? ☐ YES ☐ NO ☑ NA, no monitoring performed

If YES, summarize the findings of that review and describe any additional inspection activities resulting from this review:

5. Describe any evidence of pollutants entering the drainage system or discharging to surface waters, and the condition of and around outfalls, including flow dissipation measures to prevent scouring:

No evidence of pollutants entering any surface waters.

6. Have you taken or do you plan to take any corrective actions, as specified in Part 3 of the permit, since your last annual report submission (or since you received authorization to discharge under this permit if this is your first annual report), including any corrective actions identified as a result of this annual comprehensive site inspection?
☑ YES ☐ NO

If YES, how many conditions requiring review for correction action as specified in Parts 3.1 and 3.2 were addressed by these corrective actions? 03

***NOTE:** Complete the attached Corrective Action Form (Section D) for each condition identified, including any conditions identified as a result of this comprehensive stormwater inspection.*

C. INDUSTRIAL ACTIVITY AREA SPECIFIC FINDINGS

Complete one block for each industrial activity area where pollutants may be exposed to stormwater. Copy this page for additional industrial activity areas.

In reviewing each area, you should consider:

- Industrial materials, residue, or trash that may have or could come into contact with stormwater;
- Leaks or spills from industrial equipment, drums, tanks, and other containers;
- Offsite tracking of industrial or waste materials from areas of no exposure to exposed areas; and
- Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas.

INDUSTRIAL ACTIVITY AREA 01:

1. Brief Description:

Shop yard, including the fueling area

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised control measures necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA 02:

1. Brief Description:

Hot start line

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised c necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA 03:

Brief Description:

Storm Water Retention Ponds

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO
3. Have any control measures failed and require replacement? ☐ YES ☑ NO
4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

NOTE: Copy this page and attach additional pages as necessary

INDUSTRIAL ACTIVITY AREA 04:

1. Brief Description:

Haul roads

2. Are any control measures in need of maintenance or repair? ☑ YES ☐ NO

3. Have any control measures failed and require replacement? ☐ YES ☑ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

Culverts along Valley View, #4W-4E, 7 & 12

INDUSTRIAL ACTIVITY AREA 05:

1. Brief Description:

Tipple and stock piles

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO

3. Have any control measures failed and require replacement? ☐ YES ☑ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

INDUSTRIAL ACTIVITY AREA 06:

1. Brief Description:

Pit area

2. Are any control measures in need of maintenance or repair? ☐ YES ☑ NO

3. Have any control measures failed and require replacement? ☐ YES ☑ NO

4. Are any additional/revised BMPs necessary in this area? ☐ YES ☑ NO

If YES to any of these three questions, provide a description of the problem: (Any necessary corrective actions should be described on the attached Corrective Action Form)

NPDES Permit Tracking No.:
IDR05C017

D. CORRECTIVE ACTIONS

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # 01 of 03 for this reporting period.

2. Is this corrective action:

- ☐ An update on a corrective action from a previous annual report; or
- ☑ A new corrective action?

3. Identify the condition(s) triggering the need for this review:

- ☐ Unauthorized release or discharge
- ☐ Numeric effluent limitation exceedance
- ☐ Control measures inadequate to meet applicable water quality standards
- ☐ Control measures inadequate to meet non-numeric effluent limitations
- ☐ Control measures not properly operated or maintained
- ☐ Change in facility operations necessitated change in control measures
- ☐ Average benchmark value exceedance
- ☑ Other (describe): regular maintenance

4. Briefly describe the nature of the problem identified:

Culverts #4W -4E,7 &12 on the Valley Haul road were plugged off.

5. Date problem identified: 09/25/2013

6. How problem was identified:

- ☑ Comprehensive site inspection
- ☐ Quarterly visual assessment
- ☐ Routine facility inspection
- ☐ Benchmark monitoring
- ☐ Notification by EPA or State or local authorities
- ☐ Other (describe): _____

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination:

A backhoe will be used to remove sediment from the culvert openings.

8. Did/will this corrective action require modification of your SWPPP? ☐ YES ☑ NO

9. Date corrective action initiated: ___/___/____

10. Date correction action completed: ___/___/____ or expected to be completed: 11/29/2013

11. If corrective action not yet completed, provide the status of corrective action at the time of the comprehensive site inspection and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

NPDES Permit Tracking No.:
IDR05C017

D. CORRECTIVE ACTIONS

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # 02 of 03 for this reporting period.

2. Is this corrective action:

- ☐ An update on a corrective action from a previous annual report; or
- ☑ A new corrective action?

3. Identify the condition(s) triggering the need for this review:

- ☐ Unauthorized release or discharge
- ☐ Numeric effluent limitation exceedance
- ☐ Control measures inadequate to meet applicable water quality standards
- ☐ Control measures inadequate to meet non-numeric effluent limitations
- ☐ Control measures not properly operated or maintained
- ☐ Change in facility operations necessitated change in control measures
- ☐ Average benchmark value exceedance
- ☑ Other (describe): regular maintenance

4. Briefly describe the nature of the problem identified:

Along the access road to the FMTE cap the straw wattles in the road dispersion ditch were over topped and under cut from recent rain events.

5. Date problem identified: 09/25/2013

6. How problem was identified:

- ☑ Comprehensive site inspection
- ☐ Quarterly visual assessment
- ☐ Routine facility inspection
- ☐ Benchmark monitoring
- ☐ Notification by EPA or State or local authorities
- ☐ Other (describe): _____

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination:

Damaged straw wattles were replaced, additional rock armor was added to slow down the movement of water.

8. Did/will this corrective action require modification of your SWPPP? ☐ YES ☑ NO

9. Date corrective action initiated: 10/08/2013

10. Date correction action completed: 10/10/2013 or expected to be completed: __/__/____

11. If corrective action not yet completed, provide the status of corrective action at the time of the comprehensive site inspection and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

NPDES Permit Tracking No.:
IDR05C017

D. CORRECTIVE ACTIONS

Complete this page for each specific condition requiring a corrective action or a review determining that no corrective action is needed. Copy this page for additional corrective actions or reviews.

Include both corrective actions that have been initiated or completed since the last annual report, and future corrective actions needed to address problems identified in this comprehensive stormwater inspection. Include an update on any outstanding corrective actions that had not been completed at the time of your previous annual report.

1. Corrective Action # 03 of 03 for this reporting period.

2. Is this corrective action:

- ☐ An update on a corrective action from a previous annual report; or
- ☑ A new corrective action?

3. Identify the condition(s) triggering the need for this review:

- ☐ Unauthorized release or discharge
- ☐ Numeric effluent limitation exceedance
- ☐ Control measures inadequate to meet applicable water quality standards
- ☐ Control measures inadequate to meet non-numeric effluent limitations
- ☐ Control measures not properly operated or maintained
- ☐ Change in facility operations necessitated change in control measures
- ☐ Average benchmark value exceedance
- ☑ Other (describe): regular maintenance

4. Briefly describe the nature of the problem identified:

Rills developed on the east facing slope of the FTME across from the South Rasmussen Drainage due to recent rain events.

5. Date problem identified: 09/25/2013

6. How problem was identified:

- ☑ Comprehensive site inspection
- ☐ Quarterly visual assessment
- ☐ Routine facility inspection
- ☐ Benchmark monitoring
- ☐ Notification by EPA or State or local authorities
- ☐ Other (describe): _____

7. Description of corrective action(s) taken or to be taken to eliminate or further investigate the problem (e.g., describe modifications or repairs to control measures, analyses to be conducted, etc.) or if no modifications are needed, basis for that determination:

Rock armor was added to the rills to prevent further scouring of the slope.

8. Did/will this corrective action require modification of your SWPPP? ☐ YES ☑ NO

9. Date corrective action initiated: 10/11/2013

10. Date correction action completed: 10/16/2013 or expected to be completed: __/__/____

11. If corrective action not yet completed, provide the status of corrective action at the time of the comprehensive site inspection and describe any remaining steps (including timeframes associated with each step) necessary to complete corrective action:

NPDES Permit Tracking No.:
IDR05C017

E. ANNUAL REPORT CERTIFICATION

1. Compliance Certification

Do you certify that your annual inspection has met the requirements of Part 4.2 of the permit, and that, based upon the results of this inspection, to the best of your knowledge, you are in compliance with the permit? ☑ YES ☐ NO

If NO, summarize why you are not in compliance with the permit:

2. Annual Report Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Representative Printed Name: Frederick Partey Title: EH&S Supervisor

Signature: _____ Date Signed: 11/8/13

Attachment D
North Rasmussen Ridge Mine
Reese Canyon Insignificant Degradation Analysis
Cover Letter

Agrium

September 22, 2014
File No. MDP-14-003
VIA E-MAIL and U.S. MAIL

Mr. Doug Tanner
Waste/Remediation Manager
Idaho Department of Environmental Quality
444 Hospital Way #300
Pocatello, ID 83201

Re: North Rasmussen Ridge Mine Reese Canyon Creek Insignificant Degradation Analysis

Dear Mr. Tanner:

Nu-West Industries, Inc., doing business as Agrium Conda Phosphate Operations (Agrium), has prepared the following analysis that demonstrates that water quality impacts to Reese Canyon Creek (RCC) from mining activities at the North Rasmussen Ridge Mine (NRRM) are "insignificant" as described in Idaho's Antidegradation Implementation Procedures. This analysis was requested by the Idaho Department of Environmental Quality (IDEQ) to address potential impacts to surface water in RCC identified during the NRRM Model Validation Study (MVS). The MVS was conducted to address issues raised by the Bureau of Land Management (BLM) in their Conditions of Approval to the 2003 Record-of-Decision (ROD)-approved Mine and Reclamation Plan.

The MVS included evaluation of potential impacts to water resources and developed mitigation measures to reduce these impacts, one of which has been referred to as the Northward Draining Backfill Mitigation Measure (NDBMM). The NDBMM is designed to divert stormwater runoff to RCC rather than allow it to infiltrate into pit backfill and potentially generate ponded conditions in Panel B. Best Management Practices (BMPs) were developed to mitigate potential impacts to surface water in RCC that result from the NDBMM. Agrium has since submitted a proposed Mine Plan Modification to the BLM for the NDBMM, which included a reclamation plan detailing the proposed BMPs.

MVS Technical Memorandum (TM) 8, which presented the design and analysis of the NDBMM, demonstrated that runoff from the NDBMM into RCC would meet all Idaho numeric surface water quality standards for the seven identified constituents of potential concern (COPCs). However, despite being below numeric standards, some COPCs could lower water quality in RCC above ambient water quality. When the potential for significant water quality degradation exists, Idaho Antidegradation Implementation Procedures require a Tier II Analysis to determine whether the

degradation is necessary to accommodate important economic or social development. Under the state's recently promulgated de minimus rule, a Tier II Analysis is unnecessary if the potential degradation is deemed to be insignificant.[1]

Before the new de miminus rule on insignificance was adopted, IDEQ requested and Agrium prepared and submitted for IDEQ's review a draft Tier II Analysis, which was termed surface water Best Management Plan Analysis (BMPA, Appendix A). After the new rule was promulgated and the attached calculations (Appendix B) were performed indicating that the degradation was insignificant, IDEQ determined that the surface water BMPA did not need to be completed or the IDEQ comments on the draft addressed. However, the draft surface water BMPA is attached to this letter for the record.

Idaho Antidegradation Implementation Procedures define insignificant degradation as degradation that does not decrease the assimilative capacity of the receiving water (i.e., RCC) by more than ten percent (10%). The assimilative capacity of the receiving water is defined as the difference between the ambient concentration and the concentration allowed by the controlling criterion. The ambient concentration is the water quality that would exist given authorized discharges and nonpoint source activities as of July 1, 2011.

The attached Table 1 provides surface water monitoring data from three locations in RCC in the vicinity of NRRM from 2010 through 2013 for the seven COPCs evaluated in this analysis (antimony, arsenic, cadmium, lead, nickel, selenium, zinc). Hardness data are also included because Idaho surface water quality standards for some COPCs are dependent on the hardness of the receiving water. The data were used to determine ambient concentrations of COPCs in RCC for the insignificant degradation analysis. Data from 1999 through 2002 were excluded from the analysis because the data were analyzed for an incomplete suite of constituents and were often analyzed using different laboratory methods (e.g., dissolved metals vs. total metals) and method detection limits compared to the 2010 – 2013 data. A total of eight sampling events were included in the analysis. Duplicate samples were excluded to maintain temporal independence of samples according to EPA Unified Guidance statistical recommendations. Because the three water quality monitoring locations are all in the upper reaches of RCC, results from all three locations were averaged for each sampling event to maintain spatial independence of the samples.

Idaho Antidegradation Implementation Procedures recommend using the 95th percentile of the data as the measure of the ambient concentration when at least 12 monthly samples are available, citing the 95th percentile as a conservative measure. When this minimum data criterion is not met, Idaho Antidegradation Procedures recommend conservatively using the maximum detected value of the dataset as the ambient concentration. Because the RCC datasets consist of only eight sampling events, the maximum detected value of each dataset was selected as the ambient concentration for each COPC. When a dataset consisted entirely of non-detects, the maximum detection limit was selected as a conservative estimate of the maximum value.

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[1] Since the proposed storm water discharges to RCC are already authorized in an existing NPDES general permit which was previously subject to an anti-degradation analysis, an additional anti-degradation analysis is not required under IDEQ rules. Agrium nevertheless voluntarily agreed to undertake this analysis as part of the MVS and mine plan modification.

The attached Table 2 provides the calculations and results of the insignificant degradation analysis. Initial assimilative capacity was calculated as the difference between the ambient concentration and the Idaho numeric surface water quality standard. Hardness-based numeric standards for cadmium, lead, nickel, and zinc were calculated using equations provided in IDAPA 58.01.02.051.02 and the average hardness of the eight RCC surface water samples of 177 mg/L $CaCO_3$. Final assimilative capacity was calculated as the difference between the concentration in RCC after NDBMM discharge and the Idaho numeric surface water quality standard. Concentrations in the runoff of the NDBMM were taken from MVS TM 8. For COPCs that lower water quality in RCC (i.e., arsenic, cadmium, lead, and zinc), the percentage decrease in assimilative capacity is less than two percent (2%), which is deemed insignificant under Idaho Antidegradation Implementation Procedures. Thus, a Tier II Analysis of the NDBMM discharge to RCC is not necessary.

Agrium formally requests IDEQ written acceptance of this analysis as satisfying Idaho Antidegradation Implementation Procedures for the NDBMM. Please contact Dr. Frederick Partey, Environmental Project Specialist, at 208-547-1089 if you have any questions regarding this letter.

Sincerely,

Alan D. Haslam
Director of Mining

CC: Dr. Frederick Partey, Agrium
Mr. Matt Wilson, USFS/BLM

Table 1: NRRM Reese Canyon Creek Surface Water Monitoring Data and Ambient Concentrations
Table 2: NRRM Reese Canyon Creek Insignificant Degradation Analysis
Appendix A: NRRM Draft Surface Water Best Management Plan Analysis Technical Memorandum
Appendix B: RCC Assimilative Capacity Calculations

Attachment E

Draft Final Preliminary Source Characterization Report (PSCR)

Executive Summary (Complete Report Included on CD)

Executive Summary

On behalf of Nu-West Industries, Inc. and Nu-West Mining, Inc. (Nu-West), ARCADIS U.S., Inc. prepared this Draft Final Preliminary Source Characterization Report (PSCR) for the South and Central Rasmussen Ridge Area (SCRRA). The PSCR fulfills a requirement of the April 2013 Consent Order between Nu-West and the Idaho Department of Environmental Quality (IDEQ) for a preliminary source characterization report to analyze the nature and extent of potential groundwater contamination emanating from the SCRRA using existing data and information (IDEQ 2013).

The SCRRA is located on Rasmussen Ridge, approximately 20 air miles northeast of Soda Springs, Idaho, and includes the South Pit, infiltration ponds, and waste rock dumps located at the former South Rasmussen Ridge Mine (SRRM); and the Central Pit, Luxor Dump, and Central Pit Collection Area located at former Central Rasmussen Ridge Mine (CRRM). Rasmussen Ridge is a phosphate resource area that contains several nearby mining projects that are used in the PSCR to establish a comprehensive conceptual site model (CSM). These mining projects include: North Rasmussen Ridge Mine (NRRM), Monsanto/P4's Enoch Valley Mine, Monsanto/P4's South Rasmussen Mine (MSRM), Rasmussen Valley Mine Project (RVMP), and Lanes Creek Mine Project.

SCRRA Regional and Local Setting

The Rasmussen Ridge Area is located within the Meade thrust plate, which is an area of significant thrust compression, faulting, and folding. The Snowdrift Anticline folding, with fold axis approximately 1,000 feet to the west of the SCRRA, resulted in bedding dips that vary from approximately 30 to 80 degrees on the flanks of Rasmussen Ridge, with bedding generally steepening to the north at the SCRRA (bedding generally strikes to the northwest and dips to the northeast). Structural features underlying the SCRRA include: geologic material consisting of Quaternary alluvium and colluvium, Triassic Dinwoody Formation, Permian Phosphoria Formation (encompassing the Rex Chert, Cherty Shale, and Meade Peak Members), Permian Grandeur Tongue Member, and Permian Wells Formation. The No Name Fault bisects the SCRRA near the middle of the former Central Pit, by MWBR-9.

Surface waters flow in two drainages: No Name Creek and South Fork Sheep Creek. No Name Creek is intermittent and ultimately flows to Angus Creek, which is located southwest of the SCRRA. South Fork Sheep Creek is intermittent within and downstream from the SCRRA before turning perennial at approximately 0.7 mile

downstream of the lease boundary prior to joining Sheep Creek, east of the SCRRA. Angus and Sheep creeks are tributaries to the Blackfoot River. Additionally, a series of infiltration basins and ponds were developed alongside the haul roads to capture surface water runoff. Water retention ponds (WRPs) built within the streambed of South Fork Sheep Creek capture the surface water draining from the SCRRA alongside the South Dump. These waters are pumped to Pumpback Pond and infiltrated into the backfill of the Central Pit.

Depending on flow conditions, No Name Creek and South Fork Sheep Creek can either be gaining or losing compared to alluvial groundwater. The Crossover Reach of No Name Creek and both the Northern and Southern reaches of South Fork Sheep Creek are potentially gaining during high-flow conditions. In contrast, the Northern and Southern reaches of No Name Creek are characterized as potentially losing. During low-flow conditions, the only reach that is considered potentially gaining is the Crossover Reach of No Name Creek. The other reaches are either dry or potentially losing when flow is present after storm events. The intermittent flow conditions in both No Name Creek and South Fork Sheep Creek are not supportive of fish populations. During the 2013 biomonitoring study, no fish were collected at any location along No Name Creek and only 19 cutthroat trout tissue samples were collected from two downstream locations (BSRD-1 and BSRD-2) in South Fork Sheep Creek during both June and September.

Groundwater flow occurs in local-, intermediate-, and regional-scale systems, depending on topography, geology, and continuity of the hydrostratigraphic units:

- *Local-scale* groundwater flow systems are relatively shallow and are located in the Quaternary alluvium and colluvium deposits.

- *Intermediate-scale* flow systems typically occur in the Dinwoody Formation and Rex Chert Member (including the Cherty Shale and Rex Chert members of the Phosphoria Formation), are characterized by predominantly intrabasinal flow, and generally have large amounts of water in storage.

- *Regional-scale* groundwater flow systems are characterized by interbasinal flow, long flow paths, and large discharge springs with nearly constant annual flows. At the SCRRA, this flow system includes only the Wells Aquifer (defined as the Grandeur Tongue Member of the Park City Formation and the Wells Formation). The interpreted Wells Aquifer regional groundwater flow direction on both limbs of the Snowdrift Anticline in the Rasmussen Ridge Area is to the northwest,

parallel to the axis of the fold and along strike. This is supported by known regional surface water discharge points, analogous site CSMs, RVMP's 2012 aquifer test results, ridge-wide groundwater elevations, seasonal water-level fluctuations, and hydraulic conductivity estimates. Apparent localized flow systems within the Wells Aquifer are present based on varying groundwater elevations and seasonal water fluctuations.

Deeper groundwater (i.e., Dinwoody Formation, Rex Chert Member, and Wells Aquifer) has the potential to interact with surface water and backfill pit water at the SCRRA. The most notable hydraulic connection is observed between the backfill pits and the Rex Chert Member. Similar water level elevations and hydrographs indicate that the backfill pits and the Rex Chert Member are in hydraulic communication. Additionally, losing reaches of the two drainages have the potential to contribute water to the deeper groundwater flow systems.

SCRRA Mining and Reclamation Activities

Phosphate mining has been ongoing in southeastern Idaho since the early 1900s. Specific to the SCRRA, Rhône-Poulenc began mining at the SRRM in January 1991, in the southern end of lease I-04375. Mining activities included stripping the overburden to expose phosphate ore beds of the Meade Peak Member of the Phosphoria Formation. Run-of-mine materials consisting of overburden and center waste were placed on the native ground surface outside the eastern pit margin to create the original South Dump. This is now the eastern area of the South Dump, which is located to the east of the backfilled South Pit. As the South Pit advanced to the north, overburden (including the center waste shale) was placed into the south end of the open pit as backfill. Historically, reclamation included a surface layer of growth media consisting of topsoil and alluvium, and footwall mudstone and center waste of the Meade Peak Member of the Phosphoria Formation. The southern portions of the South Dump and South External Dump were originally reclaimed in this manner. Mining ceased at SRRM in 1998 and began at CRRM.

As mining progressed at CRRM, overburden (including center waste shales) was initially placed as backfill into the South Pit. Mining practices were refined at this time and practices of using materials with elevated selenium concentrations as capping material on dumps ceased. The refined mining practices included segregation of materials with lower selenium content from run-of-mine wastes. The majority of the SCRRA has been reclaimed using chert and/or limestone materials and a growth media cover. The primary exception to this practice is the early phase of mining at the

South Pit, where mixed run-of-mine wastes (i.e., growth media cover with seleniferous waste shales) were placed on the native ground surface to the east of the South Pit. Currently, this is where some of the greatest surface water and groundwater impacts are observed. More recent soil and sediment data collected as part of the Existing Site Characterization Report (TRC 2011) help confirm these historical mining activities. Active mining was completed at CRRM in 2004. Since this time, CRRM has been backfilled and is being reclaimed in conjunction with approved operations at NRRM.

In addition to capping reclamation activities, Nu-West improved WRPs and pumping systems in 2005 to capture surface water from South Fork Sheep Creek, which is ultimately conveyed to Pumpback Pond. Furthermore, Nu-West constructed the 21.6-acre Focused Mitigation Technology Evaluation cover system in 2012 on the east side and slope of the South Dump to evaluate constructability and effectiveness of a cap to reduce impacts to runoff and seepage.

Comprehensive Data Evaluation

The aforementioned site features (e.g., pits, dumps, haul roads), and to a greater degree where center waste shales may be exposed (e.g., South External Dump), are possible source areas that contain varying amounts of mine overburden that can weather and potentially release constituents of potential concern (COPCs) to nearby surface water and groundwater under certain geochemical and hydrologic conditions. At the SCRRA, selenium and sulfate were deemed to be the most reliable geochemical indicators of COPC transport pathways. A comparison of groundwater and surface water quality with source characterization data suggests sulfate is likely behaving conservatively upon release from backfill, whereas selenium may be attenuating within the backfill itself under certain conditions. Accordingly, sulfate serves as a useful indicator of potential mine-water impacts (including surface water runoff) and selenium concentrations can indicate oxidizing/reducing conditions and potential transport pathways. The general oxidizing/reducing conditions observed in historical site data support the characterization of transport pathways that can be divided into two categories: oxic and anoxic mine impacted waters.

Oxic water from precipitation and snowmelt (i.e., spring runoff) contacts waste rock, oxidizing sulfur and selenium contained in sulfide, selenide, and elemental selenium-containing minerals, and results in the release of sulfate, selenium, and sulfide-associated metals. These geochemical conditions (i.e., higher sulfate and selenium concentrations) correlate well with surface water runoff in the spring and shallow alluvial groundwater, which is likely in communication with surface water. In anoxic

zones, attenuation of selenium occurs via abiotic and biotic reduction of selenate and selenite to elemental selenium, removing it from solution. Biotic selenium reduction is likely coupled to the oxidation of organic matter present in the waste shale. Although redox conditions in anoxic zones are sufficiently reducing to yield selenium reduction, sulfate reduction is relatively minimal. These geochemical conditions (i.e., high sulfate and low selenium concentrations) are normally associated with baseflow conditions in alluvial and deeper groundwater pathways.

Based on sulfate and selenium analytical data, as well as other hydraulic data interpretations, surface water, alluvial groundwater, and bedrock groundwater concentrations were evaluated and the following conclusions were drawn:

- *Surface water.* Overall, selenium impacts relative to sulfate exhibit a high-flow peak similar to waste rock runoff. Following this high-flow peak, the selenium to sulfate ratio decreases during extended high flow and into the low-flow period. These lower selenium concentrations relative to sulfate are likely due to differences in the sources of shallow groundwater expressing to the surface under high- and low-flow conditions, with surface water under high-flow conditions being more representative of waste rock runoff. Greater surface water impacts are observed along South Fork Sheep Creek (up to approximately 1 milligram per liter [mg/L] at surface water locations SRD-1 through SRD-5) where existing center waste shale may be exposed. Similarly, but to a lesser degree, the Crossover Reach of No Name Creek has elevated selenium concentrations in the seeps/springs (up to approximately 1.4 mg/L at NNCSS-2), but the maximum surface water selenium concentrations in No Name Creek are significantly lower (up to approximately 0.01 mg/L at NNC-2). The selenium concentration differences between the two drainages are likely attributable to the differing reclamation practices of the two areas. Site-related surface water COPCs include aluminum, arsenic, antimony, barium, beryllium, boron, cadmium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, thallium, uranium, ,vanadium, and zinc.

- *Alluvial groundwater.* Alluvial monitoring wells can generally be split into three categories:

    1. Monitoring wells exhibiting strong selenium and sulfate impacts consistent with unsaturated column leaching studies and likely impacted by oxic waste rock runoff.

2. Monitoring wells exhibiting moderate sulfate impacts but lower selenium impacts that are likely more influenced by deep-percolation waste rock water.

3. Monitoring wells exhibiting minimal sulfate and selenium impacts indicative of either dilution of impacts with clean water or substantial attenuation of both selenium and sulfate.

Site-related alluvial groundwater COPCs are aluminum, antimony, arsenic, barium, cadmium, , cobalt, iron, lead, manganese, molybdenum, nickel, selenium, sulfate, thallium, uranium, vanadium, and zinc.

- *Bedrock groundwater.* Rex Chert Member and Dinwoody Formation monitoring wells exhibit moderate impacts consistent with the anticipated source zones for each formation. High sulfate and low selenium impacts to the Rex Chert Member aquifer are consistent with saturated backfill (deep infiltration water characterized by substantial selenium attenuation) recharging bedrock. In contrast, impacts observed at Dinwoody Formation monitoring wells exhibit the higher selenium to sulfate ratios characteristic of waste rock runoff rather than deep infiltration, consistent with surface water concentration ratios. Based on the water quality data, it is likely that the three Wells Aquifer monitoring wells at the SCRRA (MWBR-2, MWBR-6, and MW-NW20) are not showing impacts related to backfill water. Although monitoring well MWBR-2 is screened adjacent to and below the saturated portion of the backfilled South Pit, the selenium to sulfate ratio observed in MWBR-2 is not consistent with saturated backfill but shows a strong similarity to surface water concentrations observed in No Name Creek (approximately 0.004 mg/L selenium at MWBR-2). Site-related bedrock COPCs are aluminum, arsenic, cobalt, iron, lead, manganese, molybdenum, selenium, sulfate, thallium, and vanadium.

Identification of Potential Data Gaps

Potential data gaps were identified after considering information and data presented in the working CSM for the SCRRA. Further discussions between the IDEQ and Nu-West will be held to address potential data gaps prior to defining any agreed-upon approach. The potential data gaps are summarized below:

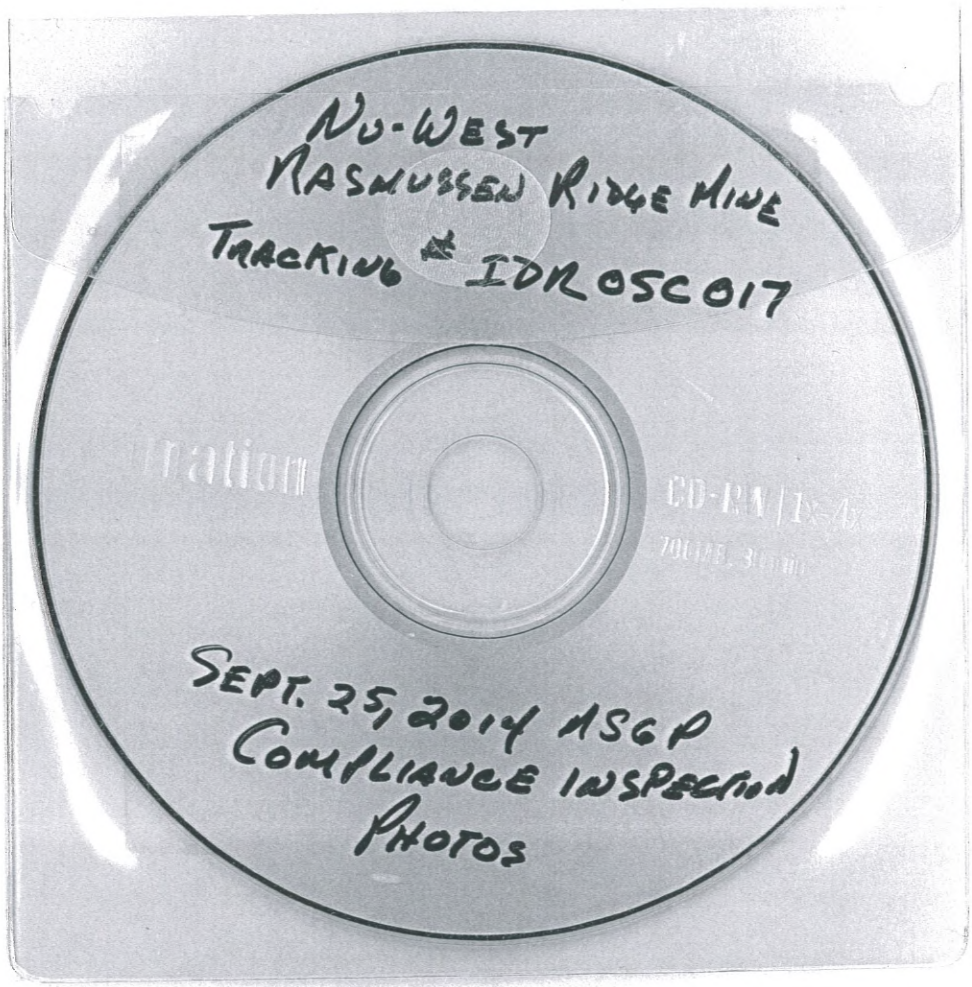
- Surface water and groundwater interactions and potential impacts along the Crossover Reach of No Name Creek have been characterized based on historical

surface water and groundwater data to the extent practicable. One additional surface water monitoring location was included in the 2014 field sampling program to better understand conditions along this reach, but additional characterization efforts may be warranted.

- Further data assessment of No Name Creek and South Fork Sheep Creek may be necessary at a later date. A limited amount of alluvial groundwater leaves the SCRRA along South Fork Sheep Creek, south of the WRPs. However, the estimated flux of alluvial groundwater leaving the SCRRA represents less than 1% of the total volume of surface water captured by the pumpback system (current SCRRA water management practices prevent mine-contact surface water from leaving the lease boundary). Coordination with other potential contributors (e.g., MSRM) and further data evaluation may help address this potential data gap.

- Limited hydraulic conductivity data in the Rex Chert Member of the Phosphoria Formation are available for the SCRRA monitoring network. Additional hydraulic conductivity data (e.g., single well test) would support the working CSM and further define the water-bearing capacities of this aquifer.

- Potential impacts to the Wells Aquifer are identified in MWBR-2 (potential surface water contributions from No Name Creek), but further investigation may be required to better understand the regional flow system near the SCRRA, as well as COPC transport pathways (e.g., unsaturated waste source material). One additional monitoring well located downgradient of the unsaturated South Pit would further characterize potential impacts from water infiltrating through the unsaturated backfill.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RASMUSSEN RIDGE MINE
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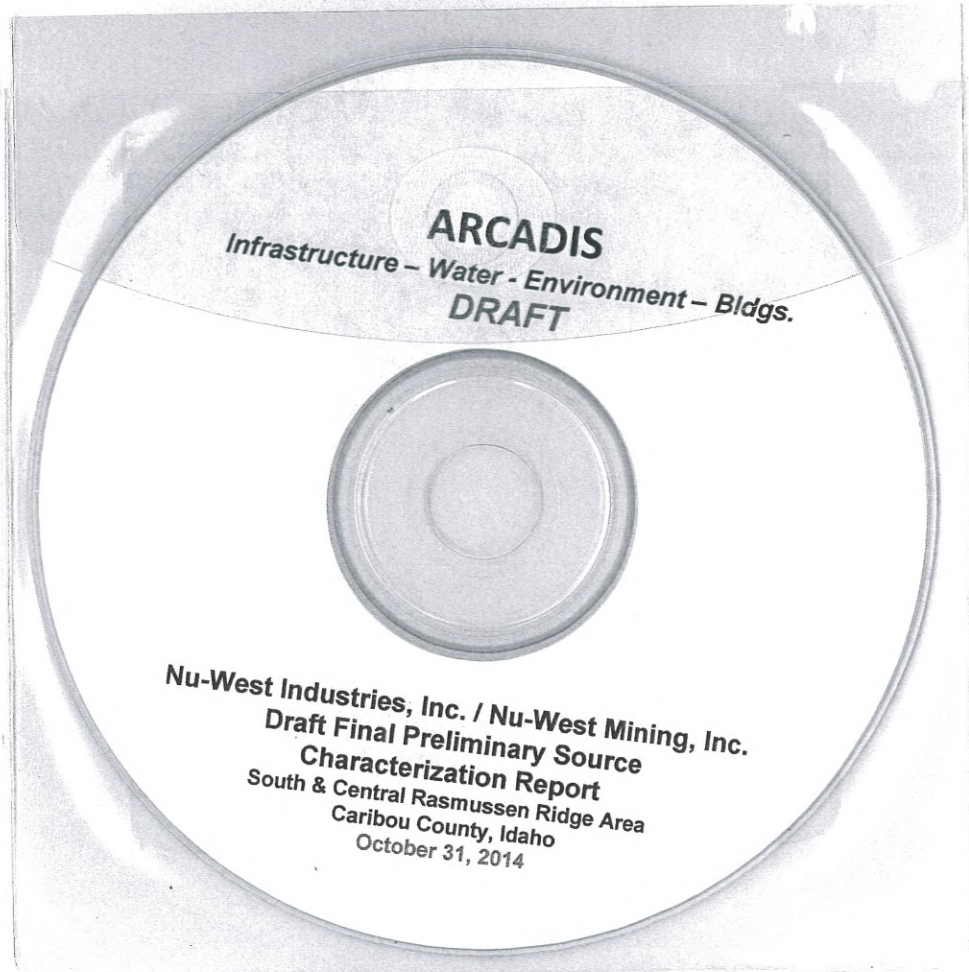
PHOTOS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Nu-West Industries, Inc. / Nu-West Mining, Inc.
Draft Final Preliminary Source
Characterization Report
South & Central Rasmussen Ridge Area
Caribou County, Idaho
October 31, 2014